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ABSTRACT

This anthology brings the study of the built environment, its design, social and cultural functions, and the criticism thereof into focus. Following a preface and introduction, 22 essays are organized in three parts. Part 1 includes: (1) "Landscape Art and the Role of the Natural Environment in Built Environment Education" (Heather Anderson); (2) "Mapping a Sense of Place: A Contextualized Approach to Designed Environments" (Laurie E. Hicks, Roger J. H. King); (3) "Kevin Lynch and Others: Implications for Built Environment Education" (Paul Langdon); (4) "Environmental Design Education in Community Contexts" (Ronald W. Neperud); (5) "Valuing and Conserving Our Built Environment" (Georgianna Short, Mary Erickson, Scott K. Cunliffe); (6) "Aesthetics of Place and the Anasazi World View" (Harriet Walker); (7) "Personal Space and Public Place: Architecture and Narrative in Built Environment Education" (Laura K. Guinan); (8) "Lessons of the Prairie School" (Rick Knivsland); and (9) "Gendered Spaces: Architecture, Feminism, and Art Education" (Yvonne Gaudelius; Laura K. Guinan). Part 2 includes: (10) "Architecture as Pedagogy" (David W. Orr); (11) "Educating for Sustainability: Letters from an Alum" (Charles W. Rusch); (12) "User Group Participation in Design Education and the Built Environment" (Anne Taylor); and (13) "The Physical Environment of Art Classrooms: A Context for Expression and Response" (Frank D. Susi). Part 3 includes: (14) "A Place in the World: Adults' Memories of Childhood's Special Places" (David Sobel); (15) "Block Building: Architecture in Early Childhood Art Education" (Suzanne Kolodziej); (16) "Children as Architects" (George Szekely); (17) "Going 'Home': Finding Our Roots in Late 19th and Early 20th Century Architecture" (Barbara Ann Francis); (18) "Art and the Built Environment: A Framework for School Programs" (Eileen Adams); (19) "Curriculum Evaluation: One Approach for Assessing Built Environment Education in the Classroom" (Ginny W. Graves); (20) "Art and the Built Environment: Strategies for Sustainable Creativity" (Stuart MacDonald); (21) "Universal Design in Art Education: Principles, Pedagogical Implications, and Resources" (Doug Blandy); and (22) "A Feminist Perspective of Built Environment Education: History, Critique, and Resource" (Hinda Hanrietta Avery). Most papers contain references. (MM)

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BUILT ENVIRONMENTS IN ART EDUCATION

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Joanne K. Guilfoil,
Alan R. Sandler, Editors

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The National Art Education Association

BUILT ENVIRONMENT EDUCATION IN ART EDUCATION

edited by

Joanne K. Guilfoil
Eastern Kentucky University

Alan R. Sandler
American Institute of Architects

1999

National Art Education Association

About NAEA

Founded in 1947, the National Art Education Association is the largest professional art education association in the world. Membership includes elementary and secondary teachers, art administrators, museum educators, arts council staff, and university professor from throughout the United States and 66 foreign countries. NAEA's mission is to advance art education through professional development, service, and advancement of knowledge and leadership.

Cover photo: *Thorncrown Chapel,* courtesy of Fay Jones Papers, Special Collections Division, University of Arkansas Libraries, Fayetteville. Thorncrown Chapel is located in Eureka Springs, Arkansas.

"The Thorncrown Chapel is as provocative as a Bach fugue."—Wolf von Ekert, arts commentator, *Time*

Acknowledgment

NAEA thanks Fay Jones, the world-renowned architect of Thorncrown Chapel, for graciously providing the photograph as shown on the cover of this book. Mr. Jones, a pioneer in built environment education, served an apprenticeship with Frank Lloyd Wright and has had a distinguished career, combining teaching and practice, spanning five decades.

He holds a Bachelor of Architecture degree from the University of Arkansas and a Master of Architecture degree from Rice University. He has also received numerous honorary doctoral degrees in Fine Arts and Humane Letters from institutions such as Kansas State University, Drury College, and Hendrix College. He served as Dean of the School of Architecture at the University of Arkansas. His architectural firm has received 20 national design awards and also 3 Honor Awards from the American Institute of Architects (AIA), including one for Thorncrown Chapel. Mr. Jones has served as visiting critic and lecturer at numerous schools of art and architecture and has served on state, regional, and national design awards juries. His projects have been featured in publications such as *Architecture, Architectural Record, Architectural Digest, Life, Time, Newsweek, The Architectural Review* (England), *Architecture+ Urbanism* and *Space Design* (Japan), *Baumeister* (Germany), and *L'Architettura* (Italy). His numerous honors include the Tau Sigma Delta Gold Medal for distinction in architectural design; the ASCA Distinguished Professor Award from the Association of Collegiate Schools of Architecture, for his "sustained creative achievement in the advancement of architectural education"; and the AIA Gold Medal, the highest honor the profession can bestow.

President George Bush says of Fay Jones: "[He] has created a truly American architecture that is respected the world over. His reverence for the land and his respect for the inner needs of the people who visit or dwell in his buildings give his architecture rare beauty and dignity."

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Thanks to all who responded to the call for papers. These papers represent our views, hopes, and aspirations about art education for generations to come. Without these authors' voices, ideas would not have been shared so eloquently. And, we would not have been so informed or have had such a resource to share.

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The idea for this project came from Gil Clark who many years ago patiently edited my first NAEA journal article on built environment education which is referenced in these pages. Thanks for giving me a voice then, the courage to write again, and the idea to initiate this book.

JKG

PREFACE

Laura H. Chapman

For this anthology, co-editors Joanne K. Guilfoil and Alan R. Sandler have brought together an informative and inspiring array of materials for teachers who wish to give more attention to architecture and the built environment. Both editors are superb teachers with a long-standing interest in this important and neglected aspect of art education.

Studies of architecture and the built environment inevitably call for some measure of interdisciplinary learning. The natural world must be considered, especially the values people ascribe to it, for those values influence all projects that alter our planetary home. There is no doubt that the natural environment is fragile and in need of responsible stewardship.

Studies of the environment also lead to questions about cultural, economic, and political power as these affect our surroundings and our lives. In a democratic society, civic life requires broad public engagement with decisions: How they are made, by whom, for whom and with what outcomes. Few environments are entirely private and personal. Most have a public dimension. My front yard or store front may seem to be my business, but it is also your view and part of a larger civic enterprise. There can be little doubt that civic culture is also fragile, threatened by relentless concern for the bottom line with little attention to other values, including those we call aesthetic.

No study of the environment is complete without giving attention to aesthetic matters. Aesthetic response is marked by a fusion of perception, thought, and feeling. It gives vitality and meaning to any life. For good reason, the opposite condition is being "anesthetized"—numb, desensitized, unaffected, unconscious. Aesthetic engagement is essential for any critical judgment about the spaces we traverse, structures we occupy, and places we inhabit. It is central to every judgment about the environment and its bearing on the quality of our lives.

Like other forms of art, any built environment can be viewed as laden with expressive meaning. Every aspect signifies what people wish to protect, take-for-granted, or actively destroy. Chain-link fences topped with razor wire, graffiti-covered walls, private enclaves with gates and guards remind us that the built environment is not a neutral background or benign presence. It is always layered with meanings. Whether grim or humane, environments affect our sense of place in the world. They influence our conduct, sense of well-being, and relationships with others. That kind of influence is powerful, but it is also largely unconscious or tacit. Environments "teach," even if they are not taken as a subject for study.

Unlike most things we regard as works of art, the built environment is never truly completed, apprehended as a permanent unified whole, or from a single vantage point. Any environment is a complex, ever-changing milieu. It is not a scene, stage or

vista. It is a shared habitat, normally experienced as a multi-sensory interplay between places, people and the purposes which bring them together. Although some elements are planned by professionals, much of the environment is the unplanned result of choices overlaid through time, with no obvious trail of responsibility. Among many other aims, education about architecture and the built environment examines these relationships.

In this volume, you will find much food for thought and practical information for teaching. Contributors to this anthology identify major issues and offer diverse views about the meanings of environments—multicultural, feminist, ecological, social and personal. They offer guides for analyzing environments, including concepts from art, urban planning, architectural history and criticism. Several chapters treat the classroom and community as contexts for reflective and creative learning, for individual and collaborative activities. There are provocative chapters about homes built by "homeless" people, the values articulated in school architecture, the constructive activities of children, and research on teaching youngsters about historical preservation.

Our students can and should play a major role in shaping the built environment. As citizens, their individual and collective decisions will determine which values and meanings are affirmed by environments. In turn, all will feel the imprint of those values in their day-to-day lives. Environments are material evidence of our collective creativity, interest in the past, concern for the future and sensitivity to the here and now. They can be a source of profound and sometimes troubling insights about ourselves. They should be places worth caring about, belonging to, and celebrating as members of a community.

Teachers of art have a special obligation to address the aesthetic and human consequences of architecture and the built environment. Those consequences are not trivial. They are evident in how people perceive, think about and treat environments—and ultimately, *each other.* That is the central theme in this anthology and a major lesson we should teach. I believe that lesson, broadly understood and acted upon, is the most important contribution of our work to this and future generations.

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INTRODUCTION

June King McFee
Professor Emerita of Art Education, University of Oregon

The impact of the built environment on the nature of civilization, its communication of diverse cultural patterns for living, and its individualized effects on human lives has been largely ignored in much of Western education.

For many years efforts have been made by small groups of art educators and some architects in Europe and the United States to develop the field of built environment education in conjunction with the study of art. But a comprehensive analysis of the dynamics of the impact of the environment on humanity, and humanity's impact on the environment, has not been recognized as central to education by educational policy makers, and even by many art educators. Strategies for teaching these dynamics have only slowly developed and in some degree of isolation from each other. Teaching these ideas to students from cultures that do not share Western aesthetics and recognizing their aesthetic values has been limited.

This book, ***Built Environment Education in Art Education,*** is a major contribution to bringing the study of the built environment, and in some degree, the natural environment, its design, its social and cultural functions, and its criticism thereof into focus. Importantly, it does this in terms of students' need to build and their need to evaluate how structures and places mold their lives even as culture does.

This broad and insightful collection of papers in total brings together a field that has been slowly growing but whose impact needed this collective focus for its value to be more acknowledged and its primary place in education to be established.

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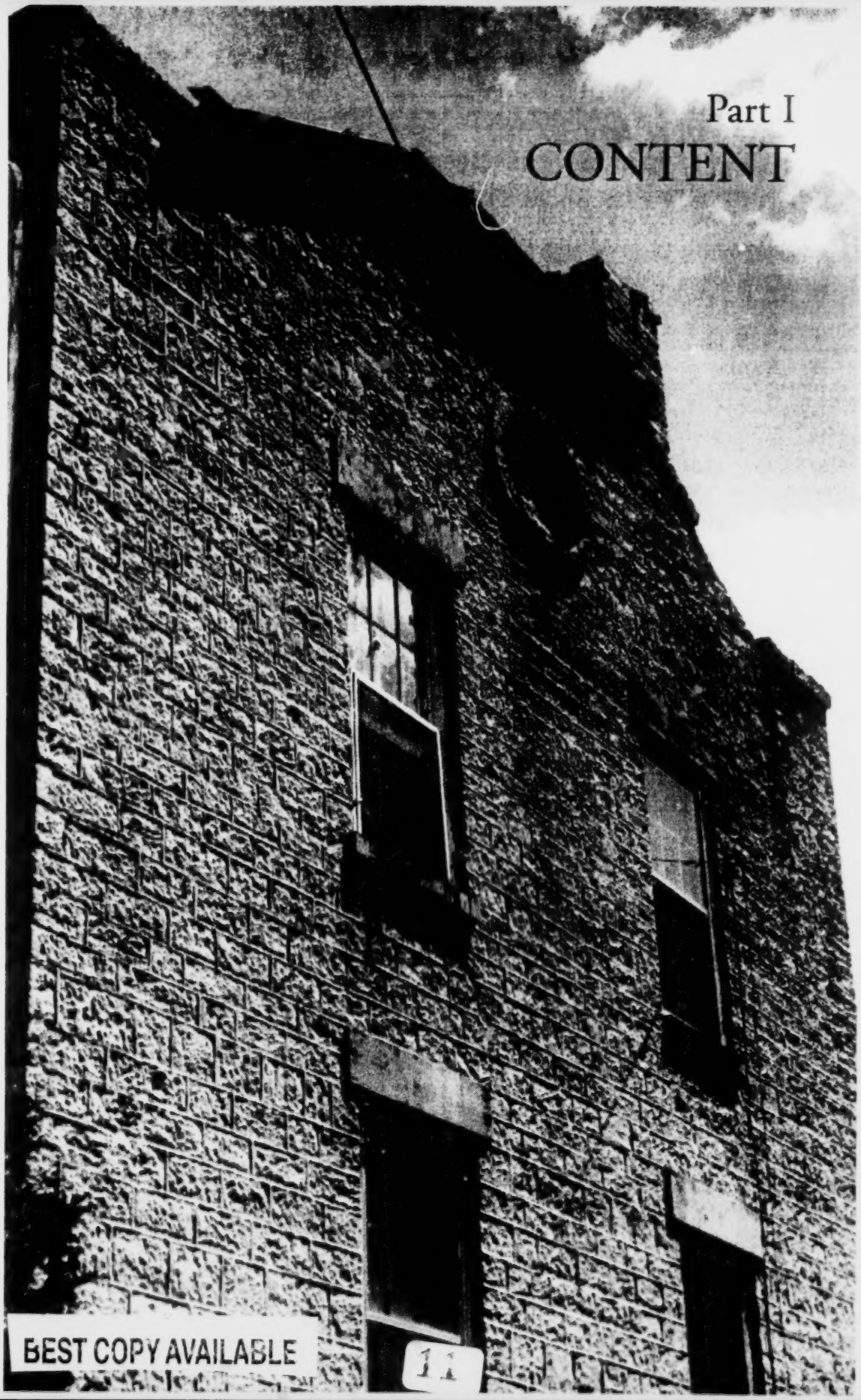

Part I
CONTENT

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LANDSCAPE ART AND THE ROLE OF THE NATURAL ENVIRONMENT IN BUILT ENVIRONMENT EDUCATION

Heather Anderson
Fresno City College

The intent of this chapter is to persuade readers to help students gain an awareness of natural and built environments through a study of historical and contemporary landscape art. Students can become more observant, gain a sensibility of landscape painting—a sharpened awareness of nature through the artist's perception, rediscover aesthetic experience in both art and nature, gain a greater awareness of the natural and built world around them, arrive at a better understanding of the environment and its problems, express this creatively, and ultimately make judgments and offer solutions to effect positive environmental change. The thrust is to leave with students what Rachel Carson calls a "sense of wonder" of the natural and built world through art.

Introduction

This chapter will persuade readers to help students gain an awareness of natural and built environments through landscape art. This awareness is gained through looking closely at the natural world, and through seeing and understanding how landscape artists perceive, interpret and express natural and built environments. Art is a vivid way of introducing students to the wonder as well as the plight of our planet. Students may gain an increased awareness of our natural and built world through more intense observation and perception, learning about artists and their works, about environmental issues, and through creative expression.

Many environmentalists talk and write in a world of facts and figures, and of environmental, economic, and political issues. Rarely do they mention aesthetics. Alan Gussow (1971) was perhaps one of the first artists to articulate in a courtroom the aesthetic value of the environment. We urgently need to alert our art students to see the natural and built worlds. It can be done through art education, since art teaches us to see and to understand and value what we see. The contribution of art education can be threefold: a heightened awareness and aesthetic appreciation of the environment and how environmental issues affect natural and built environments, a better under-

standing of landscape artists and their interpretations of the environment, and an art experience for students to see, understand, and express how these things are related.

Although this chapter deals primarily with the natural environment, our remaining natural environments are being preserved, maintained, and are therefore in a sense designed. Similarly, it will be seen that any discussion of the built environment and built environment education is innately connected to issues of the natural environment. Air, water, and soil pollution, for example, affect forests, fields, and towns alike. Environmentalists working with bioregions, note how a change in one aspect effects change throughout an entire region. The hope is to convince the reader that a study of historical and contemporary landscape art can be used to teach not only about art, but about an awareness of our relationship with natural and built environments.

Background

Artists have often been known as the conscience of society, even as social activists. Dissatisfied with the political and social climate associated with the art world, a movement was begun in the 1960s to take art out of museums and galleries and into public areas, even into remote wilderness places. As artists raised concerns about our deteriorating environment and searched for solutions, they began dealing with environmental topics in their artworks. Some documented the landscape, as in the long history of landscape painting. Some, through earthworks or site-specific artworks, commented in various ways on the environmental destruction facing our planet. Still others used their artistic sense to enhance or heal the land by creating ecological artworks that provide solutions, recreate or restore ecosystems.

The word *ecology* has to do with the care of our Earth house, or as some have described, the science of "planetary housekeeping." A German saying about housing is to return it better than one finds it. We have been poor housekeepers. These artists suggest a sustainable stewardship of the land in contrast to the environmental damage our post-industrial, high-tech society has left behind, a kind of struggle between urban and natural environments. It is a "fragile ecology," and artists are demonstrating how we can "effect positive environmental change" (Matilsky, 1992, p. 115).

Site-work artists who work to point up the environmental dilemma, suggesting solutions, and at times restoring [the environment], are not alone in working to effect positive change; they emerge after a long tradition of artists recording and interpreting the land. Art reflects, and even prefaces the times. It was for centuries an integral part of humankind's need to connect with the earth.

It began with the cave artists of Western Europe who painted their world of humans and animals. Egyptian artists left a legacy of landscape in their murals depicting agriculture and images of a sacred tree, a tree which "symbolized the rejuvenation of nature" (Matilsky, 1992, p. 9). Nineteenth-century American artists painted their way from Hudson's Bay landscapes to the California Sierra Nevada, and encouraged tourism as well as the American migration west.

Although this bond with nature dissipated during intervening years, artists continued to interpret their encounter with the land . As lovers of the land, they developed a keen sense of wonder, inspiration, and observation. Despite the acceleration of

pollution, overpopulation, wildlife decimation, and deforestation, artists rarely expressed this in their work. Their response to the ravage of nature was a "renewed reverence." This is exemplified in both French and American Impressionism, as artists moved outdoors to paint for the first time in the history of art. Thomas Moran's panorama of the *Grand Canyon of the Yellowstone* was partially instrumental in convincing Congress in 1872 to establish America's first national park. Some landscape painting was not so reverent. Tree stumps now stood in contrast to the earlier sacred tree image, as shown in Inness's train chugging through a clearcut (*Lackawanna Valley*, 1855). John James Audubon also recognized our onslaught on wildlife and documented it by painting all known birds and mammals of the eastern United States before they faced extinction.

The Natural and Built Environments in Art Education

Because artists are often the conscience and activists of society, it is not unique for them to make the connection between art and the environment. In fact, some art educators feel that cooperative problem solving, using an understanding of art along with the sciences, is essential for our survival. As art educators, we can create classroom experiences that encourage seeing, learning, expressing, and acting sensitively and responsibly to promote environmental sustainability.

The relationship between painting and the environment is suggested by the notion that aesthetics refers to both art and nature. We can just as easily discuss with students the aesthetic experience of a desert sunset as Thomas Cole's *Oxbow River* (1836). If students are to become visually aware, observant, caring adults who are alert to their environment, they must first learn to see it.

But why should the relationship between art education and the natural and built environment continue to be nourished into the 21st century? Our field of art education is gradually expanding its focus as we recognize that we are indeed a global community, and that technology, cultural diversity, feminism, and environmentalism impact our field, as they do any other. It is now necessary to provide an awareness of both natural and built environments in art education. In the 1970s, art educators did begin to deal with the built environment. Following that environmental movement, the author's dissertation (Anderson, 1984) was the first to acknowledge awareness of the natural environment in art education. Art teaches "seeing" almost more than any other discipline and should therefore be a forerunner in teaching awareness and perception of our natural and built world. The relationship between natural science and art is not new. Leonardo da Vinci led the way in combining scientific discovery and art. This connection between the natural and built environment and art education is not farfetched, but vital.

It is now 20 years since the first Earth Day and still, during each typical day on our planet, we lose 10 to 100 species, 116 square miles of rain forest, 72 square miles of agriculture or wilderness to encroaching deserts, and increase the human population by 250,000 newborns (Brower, 1995). Let us learn to cherish our delicate bubble Earth and teach that to our students, as they study design in art and the built environment.

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Landscape Artists and Built Environment Education

Many folks today are unaware that skies are becoming polluted, rivers and lakes are dying, wildlife is endangered, natural resources are being used up, toxics are contaminating communities, acid rain is killing forests, and urban sprawl is devouring countryside. Painters throughout history have had this environmental awareness and have painted and described their involvement with the natural world, including earth and sky forms, water environments, and plant and animal life. Their paintings have directed us to natural places and to multisensory experiences, to see the seasons, feel the rhythms of the tides, the energy of the wind, the swirl of a carp pool, to sense the light, or hear a bird's song. Painters also have worked symbolically to express their ideas or emotions about a vanishing natural world. Morris Graves used a unique language of symbols, while Arshile Gorky's symbolic landscape images drew from his Armenian heritage.

Artists communicate strong expressions of hope, joy, or despair of the land they love. Mark Rothko expressed an inner landscape of feelings, Milton Avery an outer landscape of shapes and colors. Neil Welliver painted his view of a winter wilderness, Willard Dixon his love of desert. Turner painted aspects of the universe in his sunsets, while Jane Freilicher worked to distill the essence of her Long Island landscape. Claude Monet painted not just haystacks but color, light, and air.

Arthur Dove worked creatively to paint the quality and spirit of a landscape. Jackson Pollock was concerned with the rhythms of nature. Georgia O'Keeffe worked with the creative life force in nature in her paintings of flowers, bones, clouds, hills, and weathered wood.

Despite an increasingly blighted landscape, many artists feel the value and fragility of a natural world. They do not present solutions, but only sharpen our awareness of natural images in a rapidly vanishing natural world. Some of these artists, as lovers of the land and painters of natural places, point up the value of things in our environment and in ourselves which we risk losing as we continue to design and build. Art and the natural environment are important for the human spirit, and we hope to impart this awareness to our students.

Environmental Issues and Built Environment Education

"Art," McFee noted (1969), "is not separate from the general basis of life on this planet" (p. 18). According to a 1990 Worldwatch Institute report, there are about 40 years "to achieve an environmentally sustainable economy" or slip into decline (Gablik 1991, p. 6). Finding solutions to environmental destruction demands immediate attention, and those of us in art education can attend to this. Both natural and built environments are aligned in the search for solutions to environmental problems.

Like the "web of life," ecology and economy are also interwoven in a net of causes and effects. Developing countries, the most polluting, tend to emphasize urban growth more than its damaging side effects. John Muir was one of the early writers to understand that humankind is not at the center of the universe nor superior to other living things. He discovered that everything is bound fast to everything else in the uni-

verse. Buckminster Fuller's metaphor of Spaceship Earth is an integrated system in which all parts must work together to contribute to a harmonious working of the whole. Solutions to environmental crises on our spaceship depend not only on the active involvement of experts and politicians, but on everyone. Our environment is not merely a life-support system; it sustains our spirit as well.

Overpopulation and environmental destruction are at the top of a list of major world issues, according to many thinkers. A burgeoning population impacts the environment, while the environment really determines any support of that population. Six destructive environmental issues that will impact natural and built environments of the future include, along with population, air, water, soil pollution, and destruction of wilderness and wildlife.

Six Environmental Issues

Overpopulation

World population of almost 6 billion is headed toward 15 billion by the end of the next century, as we add a billion human beings to the planet every decade. The world's 13 megacities range from 26 million in Tokyo to 12 million in Los Angeles. One of the world's most important design problems is how to get decent economic and living conditions for almost 6 billion people and still sustain a viable environment when population researcher, Anne Ehrlich, tells us that Earth's carrying capacity is one to two billion. Carrying Capacity is defined as the largest number of any given species that a habitat can support indefinitely, without environmental damage.

Sustainability implies long-term cultural, economic, and environmental health and vitality. It is impossible for sprawling metropolitan areas and whole countries to keep pace with public needs when their population doubles every 12 to 20 years. The environmental price of this growth is high. In the last 200 years, the United States has lost 50% of its wetlands, 95% of old growth forests, and hundreds of species of native plants and animals. In 20 years the United States has used up more resources than all the rest of the world in all previous history. Population density only exacerbates existing problems of the built environment. Art students can examine paintings of urban environments and begin a study of urban planning and housing design.

Air pollution

Air pollution has a global reach. Pollutants from smelters, industrial complexes, and power plants in urban centers of the United States become acid rain over Germany's Black Forest or settle in Arctic snow. Architectural treasures of Rome and Greece, Cologne cathedral's sandstone sculpture, and Egypt's Sphinx are all being slowly eroded. We are also destroying our ozone layer, the shield that protects us from harmful solar ultraviolet radiation. This, along with the "greenhouse effect" increases carbon dioxide in the atmosphere and contributes to global warming, with major effects on natural and built environments. A comparison of 19th-century landscape paintings with current photographs will help students see the deterioration of our air quality.

Water pollution

Our formerly clean and sparkling streams and lakes also suffer from increasing pollution. Most major river systems in America are seriously polluted with sewage, chemicals, oil, and trash, no longer the sparkling streams of yesterday. This pollution results in harmful algae growth, depleted oxygen in the water, and massive fish kills. Throughout much of the developed world, widespread acid rain and snow are destroying lakes and rivers, so vital to rural and urban environments. Students can be helped to see the increasingly poor quality of the world's water supply through comparing historical and current paintings and photographs of riparian areas.

Soil pollution

Thousands of abandoned toxic and nuclear waste dumps pose a danger to the health and well-being of millions, contaminating our water, threatening lives, and resulting in global garbage glut. Many American cities are exhausting their landfills. There is no "away" for a throwaway society. The United States produces 250 million tons of hazardous waste each year, only a fraction of the annual 6 billion tons of waste of all types produced. The world cannot continue to absorb this waste without major repercussions. As design students become familiar with historical paintings and contemporary photographs of landfills and dump sites, they will be pushed to consider the environmental and social consequences of this pollution.

Destruction of wilderness

"In wildness is the preservation of the world," wrote Henry David Thoreau. We Americans, however, have mismanaged our wilderness. Only 5% of our ancient forests remain, and of these, only 1% have legal protection. Forests provide crucial habitat for countless species of animals and birds—including many threatened and endangered species. National forests and parks also protect watersheds to ensure pure, safe drinking water for hundreds of communities, and offer recreation. Under pressure from the timber industry, pristine areas are threatened by excessive logging and clear-cutting faster than the forests can regenerate. The result? Streams are polluted by massive erosion from clear-cut slopes, fisheries are destroyed, wildlife is displaced, and hiking trails are bulldozed over by logging roads. There are global consequences as well to be discussed and expressed in art classes.

Destruction of wildlife/elimination of species

We talk about the relatedness, the "brotherhood of life," but we are not nurturing this brotherhood or biodiversity, since human technology allows us to wipe out one entire species every 15 minutes. We do this by eliminating the habitats that support them, by bulldozing, paving over, flooding out, poisoning, clear-cutting, draining and filling. Intensive grazing also disturbs wildlands, as does road building which fragments forest habitat. Acid precipitation causes great loss of diverse fauna in forest and fresh-

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water ecosystems. We may at some unknown future point, by losing one more segment of an ecosystem, for example, lose it all. To reverse that trend, humankind needs to value the preservation of diverse species more than grazing, forestry, mining, recreation, and urban development. Art teachers can help students to recognize this travesty by analyzing the art and ecology of any environment, natural or built.

Students and Environmental Issues

By studying the issues above, art students will see we have not done well as stewards of our planet. Balance and harmony are essential to the future of our ecosphere. We can study artists to see how they are exploring new ways to express nature's processes, its spirit, abuse, and its healing. We can also study designers who work with ideas from nature, as well as global needs for sustainability. The field of art education with its emphasis on the skills of perception, responsiveness, receptivity, sensitivity, and seeing-with-discrimination is a likely area for teaching an awareness of natural and built environments.

David Brower (1995), former executive director of the Sierra Club, remarked that, "We do not inherit the Earth from our fathers, we are borrowing from our children" (p. 1). If that is true, and since we are in the business of education, we had better teach our children to take a close look at the environment we have created for them. Twelve-year old Severn Suzuki summarized these six issues when she spoke at the 1992 plenary session of Earth Summit in Rio de Janeiro.

> I'm only a child and I don't have all the solutions, but I want you to realize, neither do you! You don't know how to fix the holes in our ozone layer. You don't know how to bring salmon back up a dead stream. You don't know how to bring back an animal now extinct. And you can't bring back the forests that once grew where there is now desert. If you don't know how to fix it, please stop breaking it! (Brower, 1995, p. 94)

Landscape Artists and Environmental Issues: Artists and Activists

We could begin by showing students the many ways artists have depicted environments in their art. Very early artists celebrated nature and the relationship between people and the land in various ways through their art. Although this connection was lost during the growth of cities and industry, landscape painters continued to paint the wild magnificence of the earth. A few artists and photographers began to refer to the assault on nature during the 19th and early 20th century. Until the 1960s, however, only a few artists had pointed to public need for environmental awareness in their work. Some artists have painted landscapes as something to be conquered, as a backdrop to events, or merely as still-life. In contrast, others have focused on their concern for the land by weaving together the strands of art, nature, and ecological concern. Dorothea Lange in the 1930s, for example, photographed not only the stark eroding land of the plains and the built environment, but the erosion of the human

spirit. Alexander Hogue, in *Mother Earth Laid Bare* (1938), showed a scorched landscape, the result of use and abuse of the land.

Ansel Adams is also one of these artists who brought world attention to the fragile natural world, both through his photographic art and his environmental activism. Alan Gussow, an ardent advocate for the environment, organized an exhibition and wrote a 1971 book about artists and their concern for the environment.

Environmental art gained momentum in the 1960s, with artists seeking to balance their art with an environmental sensitivity and responsibility. In the early 1990s, for example, wildlife and nature artists, inspired by Canadian artist, Robert Bateman, came from 15 countries to help save Europe's last best wetland in the village of Waniewo, Poland. Their art work resulted in the Polish government's decision in 1993 to declare 23,000 acres of the marsh a national park

Some groups use paintings as a medium to focus attention and raise money for a landscape that needs protection. In Fresno, California, the San Joaquin River Trust holds an annual auction of donated river paintings to help further river restoration. A group of 25 landscape artists in Santa Barbara, California work to build awareness and appreciation of their natural areas by painting the landscapes they work to protect, and donating 50% of painting proceeds to environmental organizations. Their efforts also helped to pass the 1995 California Desert Protection Act which established California's Mojave Desert as a National Preserve. These are only a few of the many groups celebrating the natural landscape by focusing on an environment pertinent to both natural and built areas.

Toward an Awareness of Natural and Built Environments

Until now, little interest or action regarding the natural environment has been shown by art educators, and few instructional ideas for art teachers have appeared in art education periodicals. Educational resources on the subject of this study have been almost nonexistent. Now, times have changed. During the summer of 1996 art educators convened at Ohio State University for an Art and Ecology Colloquium. *Art Education* published a 1997 issue dealing with Art and Ecology: Interdisciplinary Approaches.

What can we teachers do? We can help students understand landscape artists, and their artistic interpretations of the environment. We can teach for a heightened aesthetic perception and valuing of natural and built environments, as well as for creative expression of experiences in these environments.

Many instances of art and environment projects are becoming known. Blandy and Hoffman (1993) write of a Green Quilt project whose "makers worked toward global healing by affirming through their quiltmaking that the Earth is strong and alive" (p. 29). A Yellowstone National Park ranger-naturalist artist, David Cowan (1995), instigated a celebration of the park, its wildlife and natural environment through an exhibit and book of art works by student artists across America. Awareness of California's San Joaquin River environment through on-site art is a special program for some Clovis, California elementary students.

There is room for much more development by art educators of research, curricula, and strategies. With these materials, classroom teachers may recognize the value of

an art education that fosters awareness of natural and built environments. It is possible, even necessary, to help students to become more observant, to gain a sensibility of landscape painting—a sharpened awareness of nature through the artist's perception, to rediscover aesthetic experience in both art and nature, to gain a greater awareness of the natural and built world around them, to arrive at a better understanding of the environment and its problems, to express that creatively, and ultimately to make judgments and offer solutions to effect positive environmental change. The thrust is to leave with students what Rachel Carson calls a "sense of wonder" of the natural and built world through art.

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MAPPING A SENSE OF PLACE: A CONTEXTUALIZED APPROACH TO DESIGNED ENVIRONMENTS

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In this chapter, we defend a contextualist approach to art education and designed environments. This approach is interdisciplinary, including art and aesthetics, design, history, ecology, and philosophy. We argue that art educators should teach the designed environment as an expression of social meanings. By treating the designed environment as an expression of social meaning, we show that art education can play a role in building and sustaining community through a sense of place. This approach integrates urban design, landmark preservation, and technological innovation with theoretical reflection and practical activism related to preserving community and developing historical awareness and ecological sustainability.

Introduction

Design decisions are a regular part of everyday life. As Sim Van Der Ryn and Stuart Cowan (1996) put it: "We are all designers. We constantly make decisions that shape our own futures and those of others. We choose our everyday reality; where and how we live, how we use our time and energy, what we value and whom we care about, how we earn and how we spend. All these choices involve dimensions of design." (p. 146) When we make design decisions, we not only rearrange the physical matter of our environment, but we embody beliefs and ideas about our social and physical reality in our constructions. In order to study the designed environment, therefore, we must be prepared to consider not only the formal characteristics of our productions, but the full spectrum of ideas, beliefs, and social relations they reflect.

In this chapter, we shall defend a contextualist approach to art education and to the designed environment. This approach is inherently interdisciplinary, since it must include studies of art and aesthetics, design, history, ecology, and philosophy. Our goal is to provide arguments for why art educators should study and teach the designed environment as an expression of social meanings. By adopting a conception of the designed environment as an expression of social meaning, we hope to show that art education theory and practice has a role to play in the building and sustaining of

community through a sense of place. A contextualist approach to art education integrates debates about urban design, landmark preservation, and technological innovation with theoretical reflection and practical activism related to the preservation and enrichment of community and the development of historical awareness and ecological sustainability.

Cultural Meanings

As Henri Lefebvre (1991) notes, places are more than physical locations, they are "permeated with social relations" (p. 286) and cultural meanings. For example, the layout of a public transport network may reflect class and race prejudices by limiting the possibility of travel between poorer and more affluent neighborhoods. The design of classrooms or cathedrals may reflect assumptions about who or what should be in control and the center of attention. Playgrounds may be designed to embody adult concerns about safety rather than children's interests in challenging play (Hicks, 1987). Or, the layout of spaces within a public garden may steer intended uses away from noisy games and sports towards quiet repose and contemplation.

In addition, people have long acknowledged the meaningfulness of topographic formations in their environment and have incorporated local topography into their design decisions. For example, people who practice *feng shui* and geomancy have studied the spiritual significance of particular features of the landscape and have used this information to site and design buildings.[1] It should be clear, therefore, that places may reflect and embody a variety of beliefs and attitudes, whether these concern social class relations, the relative importance of women and men, the past history of the community, the spiritual significance of landforms, or the community's relationship to the natural environment. To fully understand a designed environment, we argue that art educators must be prepared to study these "social relations" and the impact they have on design decisions.

June King McFee and Rogena Degge (1977) have laid some of the groundwork for art educators interested in engaging their students in learning experiences which build an understanding of the cultural and historical dimensions of environmental design. Building on the research of environmental psychologists, McFee and Degge have identified sets of observational and self-reflective questions which encourage us to explore "the ways people develop cognitive maps of a city: how they relate to landmarks, divide up the parts, acquire mental images in developing their maps, find symbolic meaning in the city" (p. 267). As we shall argue, mapping constitutes a crucial pedagogical tool for art educators.

But why should we insist on the meaningfulness of the built environment rather than on its physical and formal characteristics? It might be argued that the purpose of art education is fulfilled once students and designers have understood the materials and the expressive possibilities available to designers of the built environment. When a designer or architect designs a commercial building, a shopping mall, a residential development, or a transit system, why should he or she adopt the contextualist concern for the apparently subjective reactions of people to the new construction project?

And why should he or she worry overly much about how the meanings attributed to their own project relate to meanings perceived in the built environment as a whole?

One response to these questions comes from the American pragmatist philosopher, William James (1907). Speaking of human belief generally, James argues that the meaning of any belief lies in the practical difference it makes in our experience. Beliefs, he says, are rules of action that dispose us to act and perceive in particular ways. The built environment, we would argue, is the outcome of particular human beliefs and choices. As such, the built environment embodies human dispositions to act and represents, in concrete form, the practical meaning of those beliefs that were instrumental in its design and construction. Following James, we might see the built environment as the meaningful embodiment of functional, aesthetic, political, religious, economic, and personal beliefs and assumptions about society and the world around us. The built environment exists as the difference that those beliefs made.

A Contextualist Approach

One reason for paying attention to the built environment as a realm of social meaning, therefore, is that if we lose sight of the meanings embedded in the world around us, we lose sight of the human beliefs this world embodies. In the extreme case, the built environment is drained of all meaning and becomes an enigma that confronts and alienates its inhabitants. But if ignorance of what a particular place means implies a forgetfulness of the beliefs and intentions that created that place, then conversely, we might argue that a precondition of effective engagement with a place is attention to its situated meanings. A contextualized art education, therefore, aims to empower teachers and students for a more engaged relation to place. The existence of such an "engaged relation" would be signaled by the students' ability to reflect carefully and self-consciously on the social meanings embedded in their local environment and by their preparation to participate in sustaining or reconstructing those embodied meanings.

Writing on the relationship between place and community, Dolores Hayden (1995) notes the following:

> Identity is intimately tied to memory: both our personal memories (where we have come from and where we have dwelt) and the collective or social memories interconnected with the histories of our families, neighbors, fellow workers, and ethnic communities. Urban landscapes are storehouses for these social memories, because natural features such as hills or harbors, as well as streets, buildings, and patterns of settlement, frame the lives of many people and often outlast many lifetimes. (p. 9)

So, a second argument for a contextualist focus on designed environments as expressions of social meaning derives from the role that meaningful places play in sustaining personal and community identities over time.[2] If we neglect the meanings embodied in our designs and ignore the embodied meanings in the built environment

as a whole, we risk undermining or radically altering the identity and integrity of local communities by destroying an essential source of public memory.
Hayden links the significance of place memory to social memory. Place memory helps to trigger social memory within the urban landscape.

> Place memory encapsulates the human ability to connect with both the built and the natural environments that are entwined in the cultural landscape. It is the key to the power of historic places to help citizens define their public pasts: places trigger memories for insiders, who have shared a common past, and at the same time, places often can represent shared pasts to outsiders who might be interested in knowing about them in the present. (p. 46)

This attention to the meaning of place, as it emerges in shared place memory, is a prerequisite for informed decisions about the preservation of historic and natural landmarks. What we choose to preserve both reflects what we choose to remember and creates the public arena within which future acts of public memory will occur. For example, if a project designed to restore a Southern plantation neglected to restore and narrate the lives of the plantation's slaves, this would affect the social memory that would be triggered by this place. Instead of being faced with the memory of slavery, we would be encouraged to forget that the luxury and style that has been restored was bought at the expense of oppression and subjugation. Through design, therefore, we select from the possible meanings available from the historical record and participate in the foundation and perpetuation of a sense of community and the responsibilities that go with it. Without a sound understanding of the social meanings expressed within a built environment, art educators will be ill-prepared to participate in the public discussions around historic landmark preservation.

Our argument for a contextualist approach to the designed environment has, thus far, focused on the essentially social and political nature of any built environment and the importance of recovering, evaluating, and confronting the beliefs, prejudices, and assumptions that past builders have left to the present generation. Our claim is that the identity of places and artifacts is partially constituted by the meanings attributed to them by their builders, designers, and users. Failure to understand these meanings prevents us from fully understanding the objects themselves, including the ways in which they may be obstacles to sustainable, life-enhancing communities. Close attention to the meanings embedded in the designed environments around us is essential for self-conscious participation in the life of the community. Indeed, without a contextual understanding of the built environment, teachers and students are liable to forget that designed environments are more than visual texts to be appreciated at arm's length for their formal qualities. The built environment is also an action-guiding text which influences the form and substance of our lives.

Meaning in Natural Landscapes

To say that human meaning is embedded in the built environment is not enough, however. We wish to argue that a contextualist approach must include natural land-

scapes and places as well. We must learn to see the meanings embedded in our transformation of natural landscapes, even in our decisions to preserve selected natural landscapes for their intrinsic merits. From a contextualist standpoint, the dualism between the built and natural environment is frequently overdrawn. The built environment is, after all, frequently interspersed with and adjoined to natural gardens, parks, commons, river and stream corridors, urban forests, wetlands, harbors and adjoining agricultural, forested, and marine landscapes. While remaining natural spaces, these elements of the designed environment have nonetheless been constructed, protected, or managed to serve intentions and beliefs crucial to the integrity of the built environment and its inhabitant communities.

In our view, then, a contextualist approach to the designed environment should also undertake to study the human meanings embedded in the natural environment.[3] The natural environment is imbued with social meaning in at least two senses. First, the natural world is the object of human thought and study. Our conceptions of nature have a history and have changed over time. At one time, nature is seen as a horrible and devilish place. At another, it is seen as a sublime region in which a divine presence can be felt. For some, nature is simply an economic storehouse of commodities and resources, while for others, nature embodies intrinsic values that deserve the same kind of respect owed to human beings.

In a second sense, however, the natural environment is as laden with social meaning as the built environment. Our beliefs about nature make a difference and this difference can be read in the way we have altered the material character of the natural environment. Just as a city ghetto has meaning that reflects social beliefs and prejudices, so also does a polluted river, an energy-consumptive transportation system, a clearcut forest, or an eroding field. In these altered natural landscapes, we can read the pragmatic difference that anthropocentric beliefs about the superiority of human economic gain have made in our design of the world.

Both the future integrity of the human community and the ecological integrity of natural ecosystems depend upon seeking a framework for integrating both built and natural environments as elements of a self-consciously designed community life. Future design of urban spaces, in particular, must begin to take more seriously the ecological problems of design.[4] To do this, we will need to confront the neglect of the natural environment embedded in past design decisions and envision new meanings which reflect beliefs and attitudes about how to live more sustainably with non-human beings and systems. The built environment must be reconceived and redesigned to respond to polluted air and water, to energy inefficiencies, to the crowding out of non-human inhabitants of the local region. Such general goals must be embodied in design decisions that mold the urban environment in consonance with social goals of sustainability and environmental responsibility.

Place Mapping Projects

In order to accomplish the goals of a contextualist art education, students must be brought into effective interaction with the social meanings embedded in the built environment. And they must also learn to be aware of the meanings they bring to

their own design projects. Art education practice provides a significant opportunity for students to engage in a substantial relationship to their surroundings. Art experiences may incorporate elements from a number of different disciplines as they attempt to make sense of existing patterns and to construct new ones.

We would like to suggest one line of pedagogical practice that would fit with our notion of a contextualist art education. This strategy emphasizes the importance of a sense of place and the uncovering and projecting of social meaning as an essential part of designing the built environment. Following both McFee and Degge (1977) and Guilfoil (1986), we propose that art educators work with the experience of mapping as a way to engage students with the built environment. Even the simplest act of "beating the bounds" helps a community to recognize its identity in the process of recognizing its place. But more sophisticated activities are possible both in the community and within the classroom.

The process of mapping the built environment involves active engagement in direct observation, historical research, and documentation of change and continuity. Mapping can be carried out at different levels of the landscape: the home, the neighborhood, the town or city, or the region. Describing his experiences with the "Common Ground" parish map project[5] in Redlynch, England, Richard Mabey (1994) notes that, like the maps of early map-makers, modern parish maps may reflect "the significance of things, rather than their precise position or scale...[They are] celebrations of the home ground. What they declare, proudly and clearly is: this is the place in which we live" (38) In the case of Redlynch, as in other parish map projects, the result of participation in the mapping of their community has been an increase in "the enthusiasm of the local children [and] the vastly increased awareness of (and respect for) their own locality amongst the villagers" (39).

In addition to the "Common Ground" mapping project, there are other contemporary projects that might serve as models for art educators in their efforts to encourage students to care about and take care of their surroundings.[6] Both the preservation project of "The Power of Place" in downtown Los Angeles,[7] and the "Planning to Stay" projects of Minneapolis and St. Paul,[8] for example, encourage us to look closer at the form, history, and cultural identity of our homes, neighborhoods, and communities. In borrowing from such models, students may be encouraged to understand, conserve, and strengthen their community commitments.

Mapping serves as a central metaphor for a contextualist approach to art education and the built environment. Our maps reveal what we find to be important. Thus, the act of mapping becomes a strategy for gaining awareness about the meanings contained in the environment around us. Some maps remain relatively invariant between people, describing the location of roads, hills, and rivers, for example. But others may give radically different representations of what we commonly suppose to be "the same place": identifying favorite "landmarks," safety and danger zones, areas of higher and lower density and crowding, work places, or sites of family significance.

Summary

A pedagogical mapping of the pragmatic difference that human beliefs have made in the surrounding landscape integrates both the physical environment and its structure of meaning. Mapping can draw attention to the design decisions of the past as well as set the stage for future choices. Understood broadly, therefore, mapping experiences have the potential to carry out the contextualist task of developing a sense of place through learning to think critically about the meanings embedded in the built and natural environments. Through this process, we may learn what is significant to us, but also how our perceptions of meaning differ from those of others, even of others living in the same city or region. In this way, an art education curriculum may contribute both to the scholarly understanding of the built environment and to an activist participation in community.

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Endnotes

[1]For more information on *feng shui* and geomancy, see E. Lip (1995) and N. Pennick (1979).

[2]See Y. Tuan (1977).

[3]See L. E. Hicks (1992/93).

[4]For discussions of ecological issues in the design of the built environment, see D. Gordon (1990), M. Hough (1995), B. McKibben (1995), V. Papanek (1995), N. J. Todd & J. Todd (1994), K. Yeang (1995).

[5]See A. King & S. Clifford. (1990).

[6] For further discussion of the concept of care in relationship to the environment, see L. E. Hicks & R. J. H. King. (1995).

[7] See D. Hayden. (1995).

[8] See W. Morrish & C. Brown. (1994).

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KEVIN LYNCH AND OTHERS: IMPLICATIONS FOR BUILT ENVIRONMENT EDUCATION

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The urban environment is an interwoven network of form and process. How to decipher and develop an understanding of the built environment is the focus of built environmental phenomenologists. Their goal is to develop conceptual frameworks that help us gain insights into and understanding of this phenomenon called architecture and the built environment. One of the most influential theorists in urban planning is Kevin Lynch. Developing pedagogical approaches that promote better understanding of and active participation in our urban environments is one of the mandates of built environment education. A first step to achieving this goal is to make explicit that which is implicit in our daily living habits and interactions with the built environment that surrounds us. The work of Lynch and others goes a long way in helping us acquire a better understanding and appreciation of our natural and constructed world.

Introduction

Everyone of us is born into a particular environment and nearly always it is a human-made one, constructed by our predecessors. Our formative years are spent exploring and identifying with our surroundings and then adapting to them in order to survive and flourish. We cannot be passive observers. We are obliged to engage with the built environment continually for our birth, death, marriage, physical and spiritual maintenance, and livelihood take place in it.

The built environment is a society-made phenomenon, a conscious organization of physical elements intended to provide protection, social integration and aesthetic pleasure. It can also be viewed as the material representation of a culture, portraying its identity and evolution over time (Rapoport, 1979, p.14).

The built environment embodies the history of our culture and the modifications to it resulting both from changing societal values and from natural interventions. Our villages, towns, and cities bear witness to past economic, technological, and social changes as well as to natural forces such as fires, floods, tornadoes, earthquakes, and

volcanoes. The built environment represents the material intervention of human beings with the natural world. It originates from our physical need to survive and from our psychological drive to control the unknown.

Deciphering and developing insights into the built environment is the work of phenomenologists Amos Rapoport, Christian Nobert-Shulz, and particularly Kevin Lynch. Developing pedagogical approaches that promote better understanding of and active participation in our urban environments is one of the mandates of built environment education. A first step to achieving this goal is to make explicit that which is implicit in our daily living habits and interactions with the built environment that surrounds us. The work of Lynch and others goes a long way in helping us acquire a better understanding and appreciation of our natural and constructed world. This paper investigates some of the ideas of these phenomenologists and how they may be used to develop effective built environment curriculum.

Identity and Orientation: Developing an Image of "Place"

Settlements originated from the clustering of individual dwellings such as houses and farms, which then expanded into villages and towns. These resulting groupings met our ancestors' needs for security and belonging. These groupings still foster in us an identity of "place" (Norbert-Shulz, 1979, p.22).

Individual settlements become linked by connecting routes which establish their location or physical distance and direction from each other. Thus we are situated in the physical world and have a point of departure to explore further afield without the overwhelming fear of being lost. A basic sense of emotional security is developed. This security reinforces a growing sense of mastery over our environment and, accordingly, we form a unique image of the place in which we live. We evaluate all other environments in relationship to that fundamental image

As babies we do not choose the environment we are born into but, for survival purposes, we adapt to it. When a sense of belonging and of security with our surroundings has been achieved we instinctively set off to examine the unknown, retreating only when we perceive threatening circumstances. As children we develop a perceptual schemata from this familiarity with our environment that influences our reactions to all new environmental experiences. This schemata contains universal structures that are inter-human as well as locally and culturally specific (Norbert-Shulz, 1979).

Deciphering the Built Environment

How to decipher and develop an understanding of the built environment is the focus of the work of built environmental phenomenologists. Their goal is to develop conceptual frameworks that help us gain insights into and understanding of this phenomenon called architecture and the built environment. Among the most recognized people in this area are Amos Rapoport and Christian Norbert-Shulz, whose ideas have been acknowledged earlier in this chapter.

One of the most influential theorists in urban planning is Kevin Lynch. His books, *The Image of the City* (1960) and *A Theory of Good City Form* (1983), are canons in

the phenomenological literature on the city form. His work centers on the language and functional analysis of the different components that comprise the city form. In particular, Lynch (1960, pp.47-48) is noted for his identification of five categories of elements that make up the settlement or cityscape. They are "paths," "edges," "districts," "nodes," and "landmarks."

"Paths" are any transportation artery that allows for movement, such as sidewalks, roads, corridors, and canals. Paths provide an essential circuit on which to move from one destination to another.

The boundaries that define the limits of the urban form are referred to as "edges." An edge exists between the green belt and the urban form.

"Districts" are unique, identifiable locations having uniform characteristics within the urban setting. Residential neighborhoods, commercial centers and manufacturing areas are all districts.

Conjunctures or meeting places in the urban grid where animated activity takes place, such as at the intersection of major roadways or where town squares develop, are defined as "nodes."

"Landmarks" are highly distinguishable and identifiable points of reference in the urban landscape which are often found in nodes.

Lynch has provided a language and conceptual categories that help us define the city both as separate parts and as an integrated whole. The way we perceive the urban environment as an arrangement of spaces and structures where particular activities take place is integral to our sense of well-being and belonging.

Urban Planning in the Art Class

Lynch's five categories of urban elements have great potential for developing instructional designs in built environment education. For example, an investigation of "paths" could lead to a study of the existing transportation systems for both people and commodities. To begin the exploration, students would identify the different "people transportation" systems in their community—from walking, skating, cycling to riding in a car, bus, trolley, subway, train, boat, or airplane and the infrastructures used to support these systems, such as sidewalks, bicycle paths, roads, tracks, stations, tunnels, bridges, freeways, service stations, ports, and air terminals. Following this initial identification, students could investigate the advantages and disadvantages of these different "people-moving" systems while considering such things as cost, efficiency, maintenance, comfort, health and safety, air and noise pollution, speed, and accessibility. After discussing the pros and cons of walking, roller-blading, skate boarding, and bicycling in particular, students could begin to explore possibilities for making these activities more pleasant, efficient and safe. Students might consider wider sidewalks, smoother surfaces, more bicycle paths and pedestrian walkways, more interesting routes, more public benches and rest stations. As a final art project, students could plan and design specialized environments for these activities that would meet their needs and wishes.

In addition to moving people, our urban environment must also provide for the transportation of commodities such as water, waste, energy, and communications. It

would be hard to conceive of a world without running water, indoor plumbing, central heating or air conditioning, electricity, the telephone, or television. These systems require another infrastructure of wires, poles, cables, pipes, sewers, and ducts in the form of gas lines, sewers, water mains, electrical stations, telephone switch boxes, cable, and electrical lines. As a classroom art project, students could imagine a cross section or x-ray view of the street in front of their house and the infrastructure needed to transport commodities that they would find there. They could complete the project by representing in a cross-sectional drawing this infrastructure. This activity could coincide with a visit to their local municipal planning office.

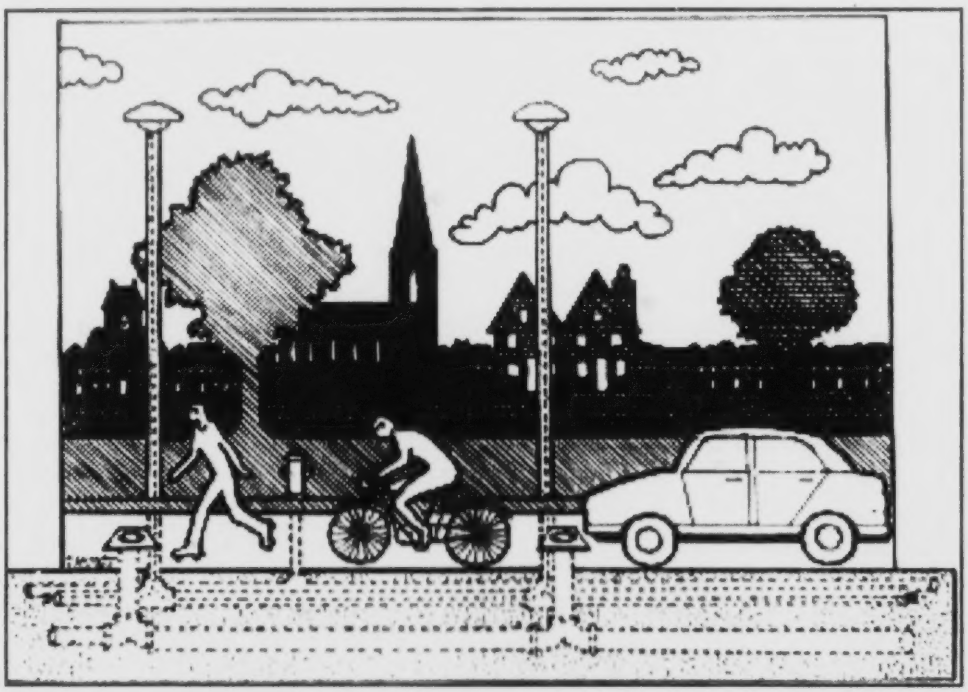

Figure 1
A Cross-sectional View of the Infrastructure

Lynch's other four categories of "edges," "districts," "nodes," and "landmarks" also hold many possibilities for investigating such urban elements as neighborhoods and other districts, local landmarks, community gathering places and major intersections and crossroads among others.

Cognitive Mapping

If you were asked to describe the community in which you live, you would probably first mention where you live, where you work, and possibly where you shop. Then you might also include the religious institutions, the educational facilities (schools and

libraries), leisure areas and facilities (parks, swimming pools, cinemas and theaters), commercial and consumer services, financial and public institutions (banks, city hall, fire hall, and police station) and health care facilities (hospitals and clinics). If you were to represent these elements of your built environment by drawing a map, you would then be forced to consider them in a holistic assemblage and not as individual units. Most of us would find this difficult as the relationship of one place to another is measured not only in street lengths and distances but also in many other visual stimuli that constitute the built environment. How many times when you give directions do you abandon street names for significant or prominent visual elements in the landscape? For example, the "gas station on the corner or the house with the red door" are personal indicators which are often more easily identified than a street sign!

We know where we live and how to find our way back, but is our conceptual plan of our own neighborhood as accurate as the cartographer's map? Probably not. It is more likely to be a personal accumulation of visual and emotional cues that relate to our identity and orientation within a particular environment. This is referred to as "cognitive mapping" (Lang, 1979, p.136). It is an important tool that develops within us to help decode and navigate our urban environment. Even though distances and spatial relations are often distorted through memory, we devise an overall plan of urban landmarks and routes from which we assess our "way finding" (Passini, 1992). Cognitive mapping differs from person to person but usually people from the same or similar cultures will recognize the significance of specific landmarks, urban cues and cultural behavior roles. Thus, a cognitive map is a visual conception that mixes geographical location with personal environmental perceptions (Jacobs,1979).

Cognitive Mapping in the Art Classroom

Cognitive mapping contains many interesting ideas for built environment education. Joanne Kurz Guilfoil in her article *Techniques for Art Educators in Architectural Design Research and Evaluation* uses examples of student cognitive maps to analyze the effectiveness of the art classroom (Guilfoil, 1986). The exploration of the students' own neighborhood as an exact spatial arrangement versus a personalized collection of visual cues can lead to their having insights into the way their own perceptions affect their navigation skills. For example, students could draw a map of the route they take from their home to school either by walking, riding a bicycle, or taking a bus or car. They could indicate on this map the significant visual indicators and points of interest along the way, such as playgrounds and parks, landmarks, places of worship, intersections, interesting buildings, etc. Students could estimate the distance of these points of interest from their house or their school (example, a third of the way, half the way). Next, students could time their journey to school and note at which point in time they pass these visual indicators and points of interest. (If they pass a particular indicator 3 minutes into a 15-minute journey, traveling at a constant speed, it should represent a fifth of the distance.) They should note any differences between perceived distance and real distance. As a final project, students could draw a combined map that incorporates the visual indicators, points of interest, and their exact location in a pro-

portional schema. Students will soon discover that there is more to reading a built environment than coding objects and spaces.

Reading the Built Environment

Lynch (1983, p.139) believes that the urban environment communicates to us through what he identifies as "explicit and implicit symbols: flags, lawns, crosses, signboards, picture windows, orange roofs, spires, columns, gates, rustic fences." From viewing symbols we draw conclusions concerning "ownership, status, group affiliation, hidden functions, goods and services, proper behavior, and many things we find useful or interesting to know." This accumulation of symbols or cues is itself a "complex symbol" of the society and of the values that have formed it.

The built environment is a vast panorama of visual and sensual stimuli. Combinations of sights, smells and sensations are all indications of how the built environment was formed and why and for whom it continues to exist. When we wait for stop lights or other urban signs we often get lost in our thoughts and rarely stop to question the usefulness or effectiveness of these indicators. The vast network of urban stimuli contains the cues that influence our individual and communal actions and it also reflects the underlying cultural values of our society.

It is essential, therefore, to have effective ways of seeing, experiencing and recording. A systematic method of viewing and recording one's built environment allows for a process of reflection and decoding of the physical elements that in turn permits a better understanding of its underlying dynamics. The art classroom holds great potential for developing these skills and insights.

Lynch(1983) calls this the "reading of place":

> Everyone is trained to read a place, just as everyone is trained to read a book. Reading a place means coming to understand what is happening there, what has happened or might happen, what it means, how one should behave there, and how it is connected to other places...History is marked out as it occurs. Present trends and future possibilities are displayed. Time of day and season are dramatized, and so are the important social events and pervasive rhythms of human activity. The environment is a celebration of place and time and process. (p. 313)

From "reading" familiar or similar cues we assume an intrinsic understanding of the nature of a particular place and the purpose or services it may provide that informs our decision to remain or move on. From foreign and unusual cues we may find the environment inaccessible and hostile or we may be captivated by them and remain to explore and discover new possibilities. In travel we often fluctuate from feelings of fascination and intrigue with new places to longing for the comfort and security provided by similar familiar environments.

Identifying Values in Urban Planning

Decoding the physical elements that make up our built environment reveals some of the societal values that the built environment represents. By analyzing our feelings and reactions of comfort or discomfort to a particular built environment, we affirm our beliefs and values about what a good urban environment is for us. Some of the values we confront are quite specific, such as those that support clean air, efficient mobility, security and safety. Other values are broader and reflect our existing cultural norms. They include the preservation of private and communal spaces, the maintenance of family struccures and the support for democratic principles such as equity of access. For built environment education to be effective it is important that we recognize the values that the built environment represents or should represent.

Lynch (1983, pp.54-56) has formulated an extensive list of values that influence urban planning. He categorizes some of them as "strong," "wishful," and "weak."

"Strong" values are those dealing with the urban policies that ensure the smooth functioning of the urban mechanics. These include fulfilling the demand for services, infrastructure and housing, providing space and resources for new development and controlling pollution. Other priorities in this category are increasing access and transportation routes, implementing property and tax values, improving safety and security, reducing crime, and preserving environmental quality, character, or status. These values are represented in our network of infrastructure such as roads, bridges, and highways and by the efficiency in which they operate. They are also represented by security services like police stations, fire halls, and health care facilities.

"Wishful" values are often those cited by politicians and bureaucrats as priority goals for improving the city form although they are most times not achieved. These goals are to support the family unit and the raising of children, to preserve the ecological balance, and protect sources of energy and natural materials. These values are often "wishful," therefore rarely realized. Such schemes as add campaigns against littering or for encouraging thoughtful behavior towards seniors and mothers of young children on transportation facilities are examples of attempts to support these values. "Weak" values are those goals that are highly desirable but not always easily attainable. They include improving mental health. increasing social stability, reducing crime and other societal pathologies, maintaining quality life styles and supporting social integration to create strong communities. In addition are goals to increase choice and diversity, protect and reinforce the city center or a particular deteriorating area, increase flexibility in the urban form for future changes and to maintain a political balance between the original urban core and its metropolitan areas. These values are translated into inner city renewal projects or the creation of neighborhood community support groups.

Lynch's categories of values give us one way of organizing and interpreting the cultural values represented in our urban form.

Though few people disagree with the benefits of clean air, green spaces, and personal security, these benefits are often in conflict with economic expansion and industrial growth. As a result, in the future, some compromise or some alternative approaches to growth will need to be investigated from many points of view. It is like-

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ly that, as in the past, power, influence and sometimes compromise will determine future urban form. When it is in place, however, any resulting urban form will then itself be subject to the many pressures for change and mutation that have affected the urban form throughout its history.

Back in the Art Classroom

"Reading" our built environment and using this information to reveal underlying societal values hold great possibilities for developing instructional designs for built environment education. An important beginning activity is the development of sensory inventories, an idea presented in the pioneering work in built environment education by Eileen Adams and Colin Ward (1982). Students construct an "environmental sensory chart" that records all they see, feel, hear, smell, and taste in the format of written commentary, sketches, textural rubbings, photographs and slides, collages, audio and video recording, found objects, or other means. Students then do a "walk-about" or investigative tour of their neighborhood (or that of their school). This is an excellent project for constructing a specialized vocabulary for expressing sensory elements. For example, for the sense of "feeling," they can describe textures as smooth, rough, slippery, shiny, rigid, pliable, fuzzy, oily, gritty, spongy or thorny and, for the sense of "smell," as sweet, pungent, fresh, sour, aromatic, fetid, fragrant, musty, perfumy, or acrid.

On returning to the art classroom, students connect these sensory impressions with the physical elements of their neighborhood, such as parks and playgrounds, houses and apartment buildings, offices and stores, libraries and schools, sports and recreational facilities, leisure and cultural facilities, hospitals and clinics, fire and police stations. These structures are then prioritized by their prominence in the community. From the size, location, and quality of construction students can determine whether their community values such things as spiritual life over commerce, recreational pleasure over transportation routes, or education over manufacturing. Students may realize how all these different physical elements fit together to make a neighborhood and if the whole works as well as it could. Students could then reflect on the qualities that make a good neighborhood, that is, one that meets the needs of all its residents from young to old and those needing support. Using the values they identify as important, students could then plan their ideal neighborhood.

Conclusion

The urban form is not a static arrangement of physical constructions but a dynamic arena for human action where people engage in economic, social, personal, and spiritual pursuits. Developing pedagogical approaches that promote better understanding of and active participation in our urban environments is one of the mandates of built environment education. A first step to achieving this goal is to make explicit that which is implicit in our daily living habits and interactions with the built environment that surrounds us. The "reading" of our particular urban environment and the identification of the cultural and social values that stimulate change are essential tools.

The work of Kevin Lynch and other built environment phenomenologists helps us acquire a better understanding and appreciation of our natural and constructed world.

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ENVIRONMENTAL DESIGN EDUCATION IN COMMUNITY CONTEXTS

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Views of environmental design education have changed from its inception to include more holistic, participatory, contextual, and dynamic views. Issues-oriented approaches to learning and teaching about environmental design in community contexts are outlined in specific cases. Against this background six position statements serve as a guide to establishing environmental design studies within a community.

Introduction

This chapter is about environmental design education set within art and elementary education. Changing conceptions of environmental design affecting pedagogical practices are set within a community context. Practices are suggested for working within communities to develop awareness, concern, and action directed toward sustaining the environmental integrity of livable communities.

Interrelated community problems such as urban sprawl, destruction of farm land, and transportation difficulties have led to an examination of how these have affected the "livability" within communities. (Any place where humans live could be said to be livable, but *livable* has come to mean those that offer a higher quality of life for more people.) Key principles for livable community design indicate that one should use pedestrian-friendly design, mix land uses, provide high quality public spaces, provide a variety of housing choices, protect natural resources, and promote community character, (Citizens for a Better Environment, 1996). Contemporary environmental design education is involved with these issues.

Changes in the meaning of art and aesthetics, design, and environment are examined here as a basis for developing environmental design education. Case studies in art and elementary education are presented along with some principles to guide the development of environmental design [curriculum] by art or by classroom teachers.

Bases for Contemporary Environmental Design Education

Meaning of environment. During the past 25 to 30 years social, psychological, biological, and physical environments (Proshansky, Ittelson, and Rivlin, 1970; Downs & Stea, 1973) have been discussed without necessarily seeking the ecological connections among particular environmental dimensions.

In contrast to earlier views of environment, the field has evolved quite dramatically. For example, Robert Gottlieb (1993) recognizes complexity and diversity and social issues as underlying assumptions about contemporary environment. The qualities and values of place have also been added to our conceptions of environment (Hiss, 1990).

Changes in art and aesthetics. Art figures prominently in environmental design education, especially in relating to ecological views. Traditionally, objective design elements and principles, along with stylistic views have dominated conceptions of art. These principles, in turn, have been transferred to environmental design. There have been several changes in art and aesthetics that have influenced our conceptions of environmental design.

In recent decades, the purposes and meanings of art have expanded to consider questions such as: For whom was it created? What purpose has it served? What shall be categorized as art? The context of creating art was linked to the object in an interactive manner. The postmodern era has been associated with a diversity of art styles and meanings which have gone beyond considering art [only] as an object of design with intrinsic qualities.

Rather than regarding art as a discrete self-contained category, artists have begun to connect environment, ecology, and art. Gablik (1991) has focused on these directions as representing a meaningful connection between art and contemporary life. She has developed the notion of "connective aesthetics" in expressing the view that modern aesthetics, with its emphasis on individualism and the separation of art from life, leaves audiences as detached observers and spectators. Gablik (1995, pp. 86-87) indicates that "Such art can never build community," and that artists are finding "ways of weaving environmental and social responsibility directly into their work."

Meanings of environmental design. If we are to use the term *built environment,* it must mean more than the study of static creations of humans, such as stylistic studies of architecture, but must recognize that what humans create is subject to the same contextual variables that are pertinent to art today.

In effect, those who are concerned with the connections between ecology of environment and human behavior—researchers, educators, and others—need to recognize the dynamic interacting dimensions today. According to Neperud (1995) environments are now regarded as:

> (1) *interactive,* in the sense that they are shaped by humans and in turn influence human behavior; (2) *sharing with multiculturalism the defining variables of race, class, and gender;* (3) experienced *phenomenologically;* (4) *products of human interpretation;* (5) *reflecting ideological orientations.* (p. 224)

These and other environmental dimensions need to be examined lest we accept faulty assumptions about the meaning of our surroundings. The terms "environmental design," "built environment," or other designations need to be examined as a basis for educational practices.

The common view that environment is separate from us is no longer applicable from a democratic, participatory perspective. Now, we need to recognize the interactive dimensions of environment which shape and constantly affect us and which are affected by us. This is a practical approach tested by cities and regions. For example, in *A New Way to Grow, Building Communities for People* (C-TRAN, 1995), a comprehensive environmental plan is outlined for Clark County, Washington.

The study of environmental design must also reflect inquiries pertinent to revealing changed meanings. Objectively defined elements and dynamics of design are not necessarily the sole building blocks or visual language necessary to understand art or environment. Even understanding the alphabet does not ensure reading or writing skills and communication. It is the connection of the child's experienced world to visual markings and structures that provides the basis for reading and writing. So too, our efforts to develop understandings and concerns for our surroundings are based on dynamic interactive experiences and not solely upon the design study of visual structure. A child draws a house not because he or she has the ability to create straight lines, but because the activity has meaning within lived experiences. So too, the study and planning of environments are connected to meanings within everyday lived experiences.

Community Contexts. Another dimension of environment that lends purpose to education is *community.* Individuals live within particular communities—sometimes defined by geography, sometimes by purpose, and sometimes through ethnicity or class. Communities may be defined in several ways: (1) geographically or demographically, as existing in a particular location; (2) membership in a group, such as defined by age, class, gender, occupation, or ethnicity; (3) membership through bonding or participatory engagement in a common process such as education (Bowers, 1993). *Community context* as used here primarily refers to the last category, in that individuals are affiliated through common goals uniting learning, life, society, and education which Shannon refers to as Education-Based Community Development (1992, p.3).

Based on these views, I have referred to the *texture of community* in that "social and environmental problems are revealed not through abstract generalizations, but through the specificity of particular community contexts....Without attention to the particulars of spaces within which we live and work, ecological matters have little connection to our daily being," (Neperud, 1995, p. 232). From this perspective, environmental design education is a participatory engagement of individuals of all ages and circumstances working toward the reintegration of community, schools, educational processes, and everyday life. Environmental design becomes socially responsible within community contexts.

The Inquiry Model. I believe that an inquiry model of teaching and learning offers the brightest prospect for realizing the environmental principles [discussed here]. Lankford (1996) describes the *inquiry model* as, "characterized by direct experience

and participation, critical thinking, questioning, analysis, observation investigation, discovery, and independent and collaborative drawing of conclusions." This is a process which is a direct experiential and participatory way of learning, consistent with democratic, community-based environmental education. Lankford (1996) goes on to explain that this is an "issues-centered approach to education...viewing them in context...Learners draw on their own experiences and research to form conclusions, make decisions, and develop a plan of action." Education in community contexts is an issues-oriented approach that engages students in a dialogue that results in taking action. This is what characterizes the approaches to environmental design education advocated in this chapter. Based on these principles, two case studies of practices within community contexts are outlined.

Some Educational Practices

A Community Engagement: A Case Study

So many school activities deal with a form of passive learning in which students read, reflect, and memorize without actually directly relating to the real living subject. Realizing this, a group of preservice elementary classroom teachers studied communities, planned, and made specific recommendations for a more active approach. I have adapted and used this approach in working with teachers of elementary children, especially in their immediate communities.

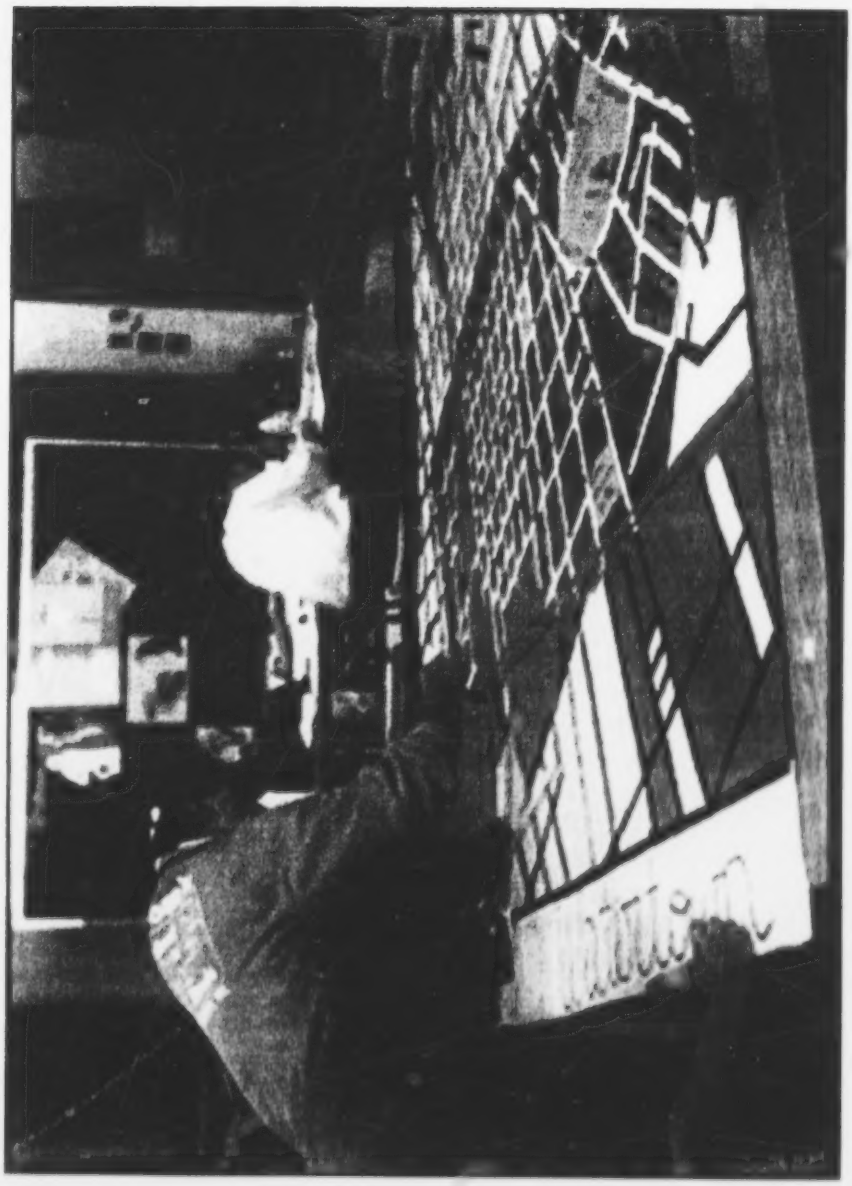
Local communities have great potential as learning environments when educators relate school studies to the real world of their surroundings. A teacher has the opportunity to define the community as a learning laboratory, and may include areas such as a local wetland, city or town, or suburban areas extending into the countryside, or a grouping of any of these. The ecology of each area may raise differing sets of problems and questions.

In this case, our focus was on small cities and towns surrounded by rural spaces. The class was relatively small, so everyone was involved in planning and conducting the study. As we looked at nearby small cities and the surrounding spaces, the issue was how these very livable spaces would respond to increasing growth and change. Questions were asked: What distinctive qualities need to be preserved? What is there about a place that produces the distinctive character? What should be changed to improve the quality of the city or area?

Students suggested several distinct local cities within a 15- to 20-mile driving distance. Initially, the cities were surveyed as a possible study sites. Five cities of moderate size (2,000 to 5,000 population) were selected for our cooperative study. The class divided into teams of 4 to 5 students each for the study.

Each group engaged in activities which could have been classified as the work of landscape architects, economic planners, city planners, and artists. Rather than being given information from the top-down to guide them, students were asked questions and problems were identified relative to preservation and planning.

Students used surveying, analyzing, reflecting, choosing, and recommending to identify the major questions and problems. They had to become historians seeking



Elementary education majors planning a map of a local small city. Photograph by R. Neperud.

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information from local libraries, community elders, and interviews with historical society members, in order to anchor recommendations for preservation or change. Information was recorded in notes, sketches, photographs and simple maps or plot plans. Each group used the information and heatedly discussed the pros and cons of growth as progress. They decided what to recommend for preservation, such as a uniquely designed building from 1897 or a grange hall of a bygone era. The usual conflicts arose between revitalizing the center of towns versus allowing strip mall development.

Eventually, each group found it necessary to create a map of the city so that areas under discussion and recommendations could be readily identified by location, thus revealing relationships within a larger ecological setting. Each group developed a list of distinctive qualities and places that should be preserved. They also created a list of recommended changes, which were sometimes in response to already planned changes in the community. The necessity to record ideas and to recommend changes led to the use of photography, painting, and drawing to graphically suggest those changes.

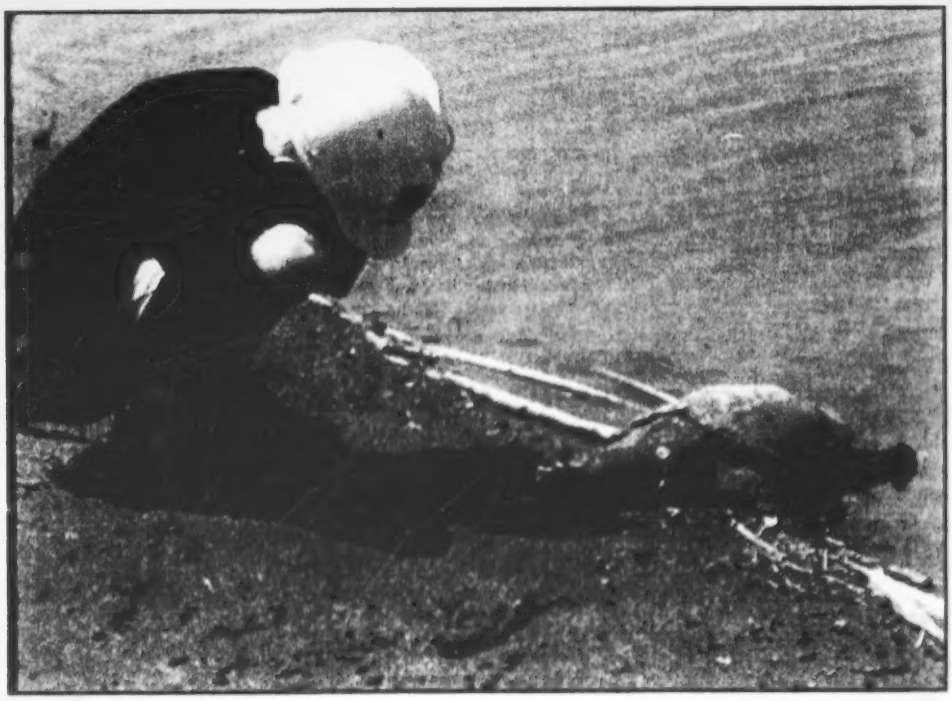
Case Study of A Community Ecological Project

The Pickerington Elementary School Wetland Project under the leadership of Mary Sheridan (1996) in Pickerington, Ohio, is an example of a community-based environmental design project created with ecological principles. In consultation with Ron Hirschi, children's book author and wildlife ecologist from Montana and Washington, children were introduced to the belief that unique natural beauty exists within one's own community. The project involved many groups from the Pickerington community working cooperatively and magically to create natural beauty on ecologically sound principles. The Pickerington School staff and administration worked with children and community members to achieve significant environmental results. Sheridan (1996) reported:

> This restoration began in a most creative way—all art driven, or at least driven by the desire to reflect upon discovery through imagery and written composition...Reflecting upon the beauty that surrounds us and communicating with others the value and the necessity of preserving that which we hold precious makes art an elemental tool for persuasion, inspiring others to also cherish and protect the inspiration for the work.

Initially, the school children visited Pickerington Ponds, a nearby State Wetland. Over a 3-day period with the help of Ron Hirschi, 500 children investigated this part of their community. As a result, all the children, from kindergarten through fourth grade, designed and produced clay tiles of area wildlife, for a 7' by 14' ceramic tile mural interpreting the natural life that they had experienced on their field trip. After much investigation and creation in which all children had a part, the mural was installed at the entrance to the wetland area.

Art teacher Mary Sheridan was very resourceful in seeking money from several different sources: arts organizations, the PTA, community groups, and cameras and



Above: A fourth grade student examines a snapping turtle that died after being caught in a drainage channel at Pickerington Ponds. Below: Mr. Raccoon tries to convince "Mighty Big Belcher" to return the water to the wetlands so that all of the animals may live. (Characters were created for a play, a collaboration of a visual artist, a puppeteer, a mime, a playwright, and 150 fourth grade students.) Photos by Mary Sheridan.

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equipment from Canon. This art teacher, other teachers, the administration, and local groups spawned other several art-related projects. Perhaps most outstanding was the idea of establishing a wetland in the corner of a poorly drained playing field! Instead of using huge sums of money to drain the field, a pond of at least one-half acre was excavated, to serve as a community learning laboratory and as an ecological restorative act. Children named it "Moose Pond," and began to plant the shoreline with cattails and other native vegetation.

At this point, the pond became a laboratory for teachers and university students attending the "Art & Ecology, Interdisciplinary Approaches to the Curriculum" at the Ohio State University. Teachers and students, literally plunged right into the task and added more plantings and dead branches, logs, and rocks to the pond, thus creating ecologically sound structures for turtles, birds, dragon flies, toads, and other indigenous pond life. With the assistance of artist Lynne Hull, critic Suszy Gablik, and biologist Ron Hirschi, they added other features, including a raptor roost. Turtles and dragon flies were soon observed using the rest areas created for them.

This ecological restoration project closely followed the environmental and learning processes outlined earlier in this chapter. This restored wetland, created in a community context, provided children with opportunities for direct experiences, taking action, and reflecting on their actions. The children's experiences established important links between ecological issues and art. This wetland project demonstrated how cooperative efforts could lead to real accomplishments. This issue-oriented community approach to education brings direct experience, reflection, and evaluation to bear on environmental problems.

Conclusions

This project used local communities as learning laboratories to study real questions and problems that any students might experience, wherever they live. These activities can be used with any level student, from elementary to preservice teachers. In this project, a problem-centered learning activity led to much innovation, imagination, and many creative approaches—activities which could have been restrained by an educational approach directed from the top down. The methods used in this project, however led to other related questions dealing with social and economic issues. This problem-centered learning activity also served as an ecological approach to teaching and learning, rather than maintaining the separation of academic disciplines. Students working with real environmental problems in their communities felt good about what they learned and were very pleased, and often surprised, by their accomplishments. Through approaches such as these, students became environmentalists in the sense that they were advocates for an ecologically whole built environment.

The ecology of community and education as pseudonyms for "environment" has led me to advocate several positions which can guide teachers in developing environmental design curricula for their students. These positions provide a foundation upon which an existing community's needs can be met by recognizing sound environmental principles, social responsibilities, and democratic processes:

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1. A team of teachers, students, and community members is the most positive way of identifying and working toward solutions for their community's environmental problems. Often several teachers representing many subjects, concerns, or grade levels might be involved. For example, one teacher might focus on one problem related to larger concern or issue, while others might focus on smaller but related aspects. Teachers of art, history, social studies, and others could focus on related concerns such as history, social context, or design aspects of a problem. And appropriate community members such as architects, planners, and governmental and business representatives could contribute by providing information and insights from their professions and personal experiences.
2. A problem-centered approach to learning and teaching about environmental issues provides a meaningful basis for developing curricula, which makes learning a real-life enterprise of processes and solutions identical to those employed by responsible citizenry. Problems might focus on heritage preservation; need for open-space; playgrounds-design; structures for government, industry, and recreation, pedestrian, bicycle, and vehicular movement; and other needs particular to a specific locale or group.
3. Identification of goals and values of differing environmental groups is a starting point for conflict resolution and problem solving in community contexts. For example, environmental preservation might be accepted at face value by different groups; however it might connote very different values, meanings, and solutions for other groups. A wildlife ecologist might insist on ecosystem preservation, as in preserving an entire forest, while a forester might take a position of balance, meaning that only some trees would be preserved while others would be cut. Therefore, it is important that conflicting groups agree on some common meanings if conflicts are to be resolved.
4. Determination of needed actions is crucial for solution of environmental problems. Sometimes we ask: "Is more information required to solve problems?" A survey of community views on how to develop a new park/playground is crucial for accomplishing this goal. If suggestions for solutions have been made, perhaps the creation of two- or three-dimensional models or layouts would make the possible solutions more accessible. Or, if suggestions have been made to preserve a nearby woodland, what are some other actions?
5. Visual plans such as maps, models, drawings, paintings and photographs, or other materials provide concrete choices from which to choose. This is where art and design classes could contribute substantially to the process. Although visual arts students contribute to each step in this process, other students and teachers, such as those in social studies and history classes, could contribute related information.
6. Alternative visual solutions should be presented to the community for dialogue and action. The use of community resources such as planning boards and a city or village council would encourage broader community participation in reacting to possible solutions. In effect, political involvement at this step encourages needed actions, if change is to occur as a result of these activities.

Community-based environmental design education using a process such as this can prepare children and youth to contribute to local or other communities in which they will find themselves later in life. Environmental design education is an issues-oriented approach. Ideas of ecology, environmental design, art, and community-based education are meaningfully related through these principles.

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VALUING AND CONSERVING OUR BUILT ENVIRONMENT

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Human passage is marked by the presence of built environments. These sites represent a non-renewable record of humanity's history, culture, and accomplishments. Many of these historic structures are endangered by nature, circumstance, and neglect. The goals of architectural conservation are to retain the material and cultural significance of fragile historic sites, and provide for their maintenance, security, and future. Achieving this goal requires educating the world's future decision makers, our young people. Art educators are in a unique position to develop young people's valuing of, and understanding about, conserving our historic built environments. This chapter details architectural conservation principles; differentiates between architectural conservation, preservation, and restoration; explains how historic built environments and culture are related; describes the importance of conserving historic built environments for present and future generations; and illustrates two approaches to development of conservation curricula that can affect the way students think about, and value historic built environments in their own and other cultures.

Introduction

"Go baby go" whispered a bystander as the first block, GA1A01, was removed from the Great Temple of Ramses II (Gerster, 1966, p. 699). After five years of controversy, the monument was finally to be rescued from the rising waters of the Nile River. A new dam was under construction in the Nile Valley. Waters collected would increase irrigatable land, creating a "wall against hunger" for the Egyptian people (Gerster, 1963, p. 588). Although need for the dam was acknowledged, its location was subjected to heated debate. The proposed site contained numerous ancient monuments

including the Temple of Ramses II at Abu Simbel. What would become of these cultural treasures when surrounding lowlands filled with water? There were no easy answers. If Ramses' Temple were allowed to sink beneath the waters of the Nile, a valuable cultural monument would be forever lost. If the historic building were to be saved, it would have to be moved (Sanpaolesi, 1968).

To critics, neither option was acceptable. Losing an irreplaceable monument to the flood waters of the Nile vilified Egypt's historical and cultural legacy. Moving the Temple was equally unacceptable. Relocation would compromise the structure's integrity and dishonor the intent of the original builders (Gerster, 1966). Decision makers had little choice. The Temple could not be lost. The Temple would be moved. Accomplishing the move safely was problematic. Only two methods were possible. The first procedure called for moving the Temple in one piece, but the process was time consuming and costs were excessive. The second procedure required cutting the structure into moveable blocks for reassembly at a later time. This plan was efficient and economical, but scholars denounced the procedure as "ruthless deface[ment]" and demanded to know how the Temple could be 'saved' by cutting it to bits (Gerster, 1966, p. 709).

Time and economics dictated implementation of the second procedure. A multinational team of architects, engineers, anthropologists, and scholars were summoned to the site. Their task was to design a removal process which both ensured the success of rescue efforts and minimized damage.

On May 21, 1965, the Temple of Ramses II was cut into 750 blocks (see Figure 1). Each block was numbered and moved to a site 212 feet above the original location. Workers then began the job of reassembly, a process lasting two years.

Successful completion of the work was announced in the Autumn of 1967 but the Grand Temple did not look the same. Wide gaps between the blocks had not been filled. When asked about this seeming oversight, retired Director General of Egypt's Antiquities Department and resident archeologist Shoukry explained: "It would be easy to go further—not only to heal these wounds but to conceal them. But would this be honest toward our forebears, ourselves, and those who come after us?" (Gerster, 1966, p. 742).

Rescue and relocation of Ramses II Great Temple is noteworthy because it was the first endangered archeological site to generate international concern (Gerster, 1969). This ancient monument represented more than the cultural legacy of a single people. It documented one of humankind's supreme achievements and was therefore of universal value.

Relocation of Ramses' Temple also raised public awareness that historic structures in international, national, state, and local communities are non-renewable cultural resources. Removal and reconstruction "saved" the ancient Temple but it also destroyed much of the structure's historical integrity.

Monuments such as the Great Temple of Ramses II at Abu Simbel are considered a form of human communication between the past and the present. They permit us "to look back in time to discern how cultures and civilizations lived, how they built, worshipped, and warred" without using words (Agnew, 1995, p. 12). These historic built environments represent an irreplaceable record of human culture and achieve-

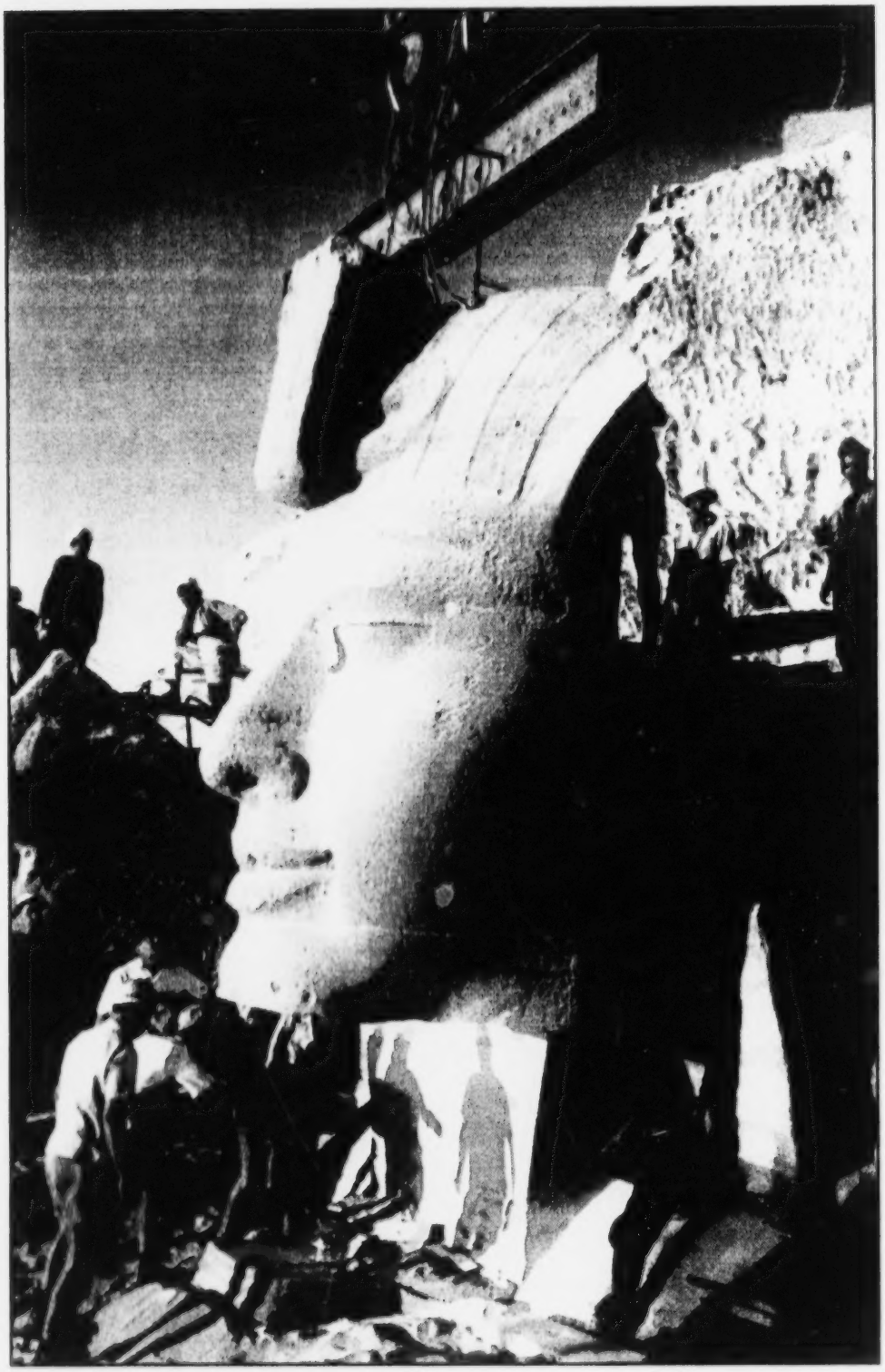

Figure 1
Block removal, Abu Simbel, Egypt

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ment enabling people to understand where they came from, to understand themselves better, to appreciate the perspective of others, and to place their own time within the frame of history (Cunliffe, 1994).

World Heritage Sites

In 1972, the United Nations Educational, Scientific and Cultural Organization (UNESCO) formally adopted "The Convention Concerning the Protection of the World's Cultural and Natural Heritage." This document details an international strategy to identify, protect, and conserve built environments throughout the world considered to be of outstanding value (i.e., cultural significance) to humanity. Importantly, the Convention represents the first international legislation to acknowledge the finite and non-renewable character of the world's important historic sites and to identify a mutual responsibility to care for, protect, and conserve the collective heritage of humankind for future generations.

The 1972 Convention encourages countries which have formally joined The World Heritage Convention to proactively protect their nation's cultural heritage by nominating outstanding historic sites within their borders to the World Heritage List. Egypt ratified the Convention in 1974. Five years later, the Temple of Ramses II at Abu Simbel was added as World Heritage Site number 211.

To prepare nominations for a new World Heritage Site, interested countries must prepare a dossier documenting the site's (a) exact location, including continent, country, state or province, longitude, latitude; (b) authenticity; (c) association with ideas/beliefs, physical/historical features of universal significance; (d) architectural or historical influences; and (e) relationship to the traditional way of life of a particular culture; (United States/International Council on Monuments and Sites, 1991). The World Heritage Committee reviews dossiers annually. Sites are meticulously evaluated in terms of universal value, authenticity and integrity "to ensure that the list does not become too long or turn into a simple checklist of all the places that countries would like to see on it" (United States/International Council on Monuments and Sites, 1991, p. 12; von Droste zu Hulshoff, 1995).

Sites nominated to the World Heritage List are eligible to apply for financial and technical assistance from The World Heritage Fund to support aid and technical cooperation such as "expert studies to determine or fight the causes of deterioration...and plan conservation measures; train local specialists in conservation and renovation techniques; [and] supply equipment to help guard...or restore a monument" (US/ICOMOS, 1991, p. 13). Moneys for the World Heritage Fund are obtained from obligatory and voluntary contributions of signatory nations, gifts from institutions/ private individuals, and donations from national/international promotional activities (United Nations Educational and Social Organization, 1989).

To date (1996), more than 500 cultural and natural properties world-wide appear on the World Heritage List including The Grand Temple of Ramses II at Abu Simbel and the Ancient Temples at Angkor Wat, Cambodia (a site considered by young people described later in this chapter.) Architectural and archaeological sites on the World Heritage List in the United States include Cahokia Mounds (Illinois), Chaco Culture

National Historical Park (New Mexico), Independence Hall (Pennsylvania), La Fortaleza and San Juan National Historic Site (Puerto Rico), Mesa Verde National Park (Colorado), Monticello and the University of Virginia's Academical Village (Virginia), and the Statue of Liberty (New York).

Built environments included on The World Heritage List represent many of the finest human creations throughout the world. It would be misleading however to suggest that these are the only places that are historically important. What may be considered historically important to a community, society, or nation is subjective, based upon values, understandings, beliefs, and the knowledge base of the people or peoples involved.

The Conservation Process

The process of conservation is aimed at ensuring that what is important about a building or place is retained for present and future generations. Conservation work on a site is preceded by comprehensive planning aimed at (a) determining what is important about the place (i.e., cultural significance) (Article 24, Australian ICOMOS, 1988); and (b) preparing a strategy or policy that will guide the conservation work that follows. More specifically, architectural conservation includes the processes of looking after a place so as to retain its cultural significance including "maintenance and may, according to circumstance, include preservation, restoration, reconstruction, and [or] adaptation, and will commonly be a combination of more than one of these" (Article 1, Australian ICOMOS, 1988, p. 1).

The process of conserving built environments blends arts and sciences in a way that is region-specific. Approaches may vary according to levels of skill and knowledge, access to new technologies, and availability of materials and resources in different countries. Subjective decisions are also necessary when considering how best to conserve or care for an old building in a modern context. Consequently, no specific international standards exist for conservation techniques or terminology. There are however various accepted conservation principles that guide professional conservation practice (ICOMOS, 1964, 1988).

First, the conservation effort generally involves multidisciplinary teamwork combining manual skill, scientific knowledge, artistic acumen, and historic sensitivity. The team may be selected from architects, archaeologists, historians, researchers, urban planners, object conservators, masons, carpenters, painters, ceramists, mosaic and surface decorators, photographers, engineers, chemists, archivists, legislators and others, depending on the size of the job.

This team, often led by the conservation architect (Feilden, 1989) first determines why the place is important. This is a crucial aspect of the planning process because findings of this analysis will determine or guide the actual conservation work that follows. One method of determining a site's importance is:

1. The conservation team prepares a description of the form, design, material(s), function and physical context of the historic structure to determine what it communicates by its condition and surroundings. This process, known as "reading" the building, may include the degree of natural deterioration of roofing materi-

als (e.g., sagging, tiles missing, metal discoloration, rust, presence of water, blocked gutters) and the condition of foundations and walls (e.g., damaged, cracked, stained, sinking, open joints, rotten/warped timber piles or posts, paint blisters/peeling). Oral histories and written documents detailing development of the site are also gathered from local sources at this time if available.

2. The conservation team compiles a thorough summary of the structure's cultural significance or heritage values embodied in the building and its context. Considerations include aesthetic value (e.g., form, scale, color, texture), scientific value (e.g., rarity, architectural and engineering uniqueness, representativeness), social value (e.g., how the site embraces spiritual, national, international sentiments to a group or groups of people), and historic value (e.g., direct or indirect influences from historic events or figures).
3. The conservation team analyzes the site's physical description together with the statement of significance and compares these with accounts of other similar structures or places. This process permits development of a clear statement of the site's cultural value.

The statement of cultural value developed by the conservation team serves to guide future care and maintenance of the site. Taking care of a historic site means: (a) developing and implementing conservation strategies which slow down, repair, or minimize all forms of physical decay, and (b) protecting the non-physical aspects of the place, including its "spirit," association with music or events, religious belief, or other intangible values. Maintaining the spirit of built environments is often more difficult than conserving the physical structure.

In determining acceptable levels of intervention, the conservation team, for example, must judge whether the exterior walls should be repainted and in so doing destroy patina acquired by the original paint and colors throughout history. They must also make determinations about repairing or reconstructing parts of a building damaged in an important historical event and by doing so doing destroy evidence of its occurrence. They must decide whether to leave part of the structure open to natural decay for educational purposes and eventually lose irreplaceable historic evidence or whether to preserve the structure in its present condition. And finally, the conservation team must decide whether elements are missing or whether new materials have been introduced. If new materials have been added, do they "fit in" or are they obtrusive to the historical integrity of the building?

There are no standard formulas for deciding the proper level of intervention. However, two widely accepted principles generally guide decision making:

1. **Minimal Intervention**: The least amount of original fabric is disturbed to ensure its protection. Protection methods should not adversely impact the significance of the building or place and should be linked to long-term planning and management concerns.
2. **Reversible Intervention**: If new materials are added, they must be attached in ways that make removal possible without significant damage to the original fabric (whenever feasible).

Conservation and Young People

Conservation and restoration of architectural sites are themes rich with educational potential. Issues can relate to students' personal built environments or those at local, state, national, and international levels. Questions about restoration and conservation can be used to strengthen young people's ability to inquire and seek the perspectives of others and in so doing increase their interest in the world they will inherit. Conservation and restoration of built environments can also serve as a substantive basis for instruction in all four art disciplines.

Two programs related to cultural heritage and the built environment identify possible instructional strategies for teachers in the areas of conservation and restoration. The first is UNESCO's "Associated Schools Project" (ASP) designed to increase young people's interest in, and awareness of, The World Heritage List, The World Heritage Convention, and the sites they strive to protect (UNESCO Special Project, 1996-97). The second is a research-related project conducted with young people in Arizona classrooms.

The Associated Schools Project

The Associated Schools Project involves an international network of some 3,200 schools in the United States and 119 schools in other countries which "conduct pilot projects in order to reinforce the humanistic, cultural, and international dimensions of education" (UNESCO Special Project, 1996-97). Objectives of The Associated Schools Project are in part:

- to sensitize young people to the importance of the World Heritage Convention and the cultural sites in their respective countries and elsewhere which are protected and promoted under the World Heritage Convention;
- to initiate teaching about cultural sites listed on The World Heritage List;
- to develop innovative interdisciplinary education approaches, including extracurricular activities (e.g., field trips to sites);
- to encourage the preservation of traditional skills;
- to incite interest in new skills and know-how which are indispensable for the safeguarding of cultural heritage;
- to reinforce young people's sense of responsibility to their cultural heritage;
- to help young people discover the ethical and cultural messages embedded in World Heritage Sites thereby encouraging respect for other cultures.

UNESCO and The Associated Schools Project suggest a number of ways to approach instruction about World Heritage Sites. One is to form interdisciplinary teams of teacher-collaborators who explore the processes of restoration and conservation with students from multiple perspectives. Another recommended strategy calls for devising curriculum strategies which enable students to make connections "between their local/national cultural heritage and world cultural heritage" (UNESCO Special Project, 1996-97, p. 5).

Conserving Our Cultural Heritage: An Art Education Research Project

For example, a team of Arizona art teachers and a university researcher collaborated to develop an experimental curricular unit focused on the theme of "Conserving Our Cultural Heritage." Purpose of the unit was to determine whether instruction in conservation, restoration, and art historical inquiry increases young people's ability to reflect on the value of the world's cultural heritage.

Students were asked to consider whether, why and how to conserve and restore historic architectural sites together with other cultural artifacts. They studied the built environment in and around their schools, historic built environments in Ancient Egypt from the World Heritage List, and at a prehistoric Native American site which they visited on a field trip. Study of the sites was structured around a set of questions based on principles of art historical inquiry.

Method. Four art teachers in two urban school districts provided instructional intervention for 85 culturally diverse fourth- and eighth grade students. All teachers taught essentially the same content sequence although each teacher made adaptations based on her or his own strengths, on the interests of students, and on local resources. In the first lesson, "Twenty Questions," the teacher thinks of persons or objects that students identify by answering a series of increasingly specific questions. After playing Twenty Questions, students complete the first of two performance assessments. For the assessment, the teacher displays large color reproductions of Angkor Wat, a historic architectural site in Cambodia found on the World Heritage List (see Figure 2). The teacher asks students to decide whether or not it is important to conserve and/or to restore Angkor Wat and why. After students have written their responses, the teacher asks them what questions they might ask an expert to help them make a better decision about the conservation and/or restoration of Angkor Wat.

In lesson two, students play the first two activities in a game called "Artifacts: Understanding Designs for Life." The first activity "What Am I Really Looking At?" asks students to compare and contrast a drawing and a photograph of an ordinary object. Then students consider how reproductions of historic artifacts and architectural sites differ from the actual artifacts or sites. The second activity "What Was It Like When It Was New?" asks students to discuss where and how ordinary objects might deteriorate over time and whether any evidence of restoration exists. Students are then asked to consider the condition of historic artifacts and architectural sites from diverse cultures using their previous discussion as reference.

In the third lesson, the teacher introduces art historical inquiry using an historical artifact s/he brings to class. The teacher asks students four kinds of questions: (a) questions seeking factual information about the object, (b) questions seeking factual information about the context in which the object was made, (c) questions about how the object was understood by people in the time and culture in which it was made, and (d) questions about the value of the object.

In lesson four, the teacher reinforces and extends the students' understanding of art historical inquiry by taking them to a local architectural site within or around the

Figure 2
Angkor Wat, Cambodia

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school. Similar to lesson three, the teacher again asks students to consider factual information about the site, factual information about the context, how the site was understood in its own time, and how the site might be valued.

In the fifth lesson, the teacher introduces students to the art and architecture of Ancient Egypt and discusses historic and contemporary threats to these historic built environments. The teacher also introduces stylistic conventions and technical processes used by Ancient Egyptians to decorate interior walls. Then students are asked to find examples of those techniques and conventions in reproductions of Egyptian art and architecture.

In lesson six, students use the stylistic conventions of Ancient Egyptian wall decoration in drawings illustrating important events in their own lives. These drawings then guide student attempts to replicate Ancient Egyptian artists' method of painting on plaster. Older students carve the plaster in low relief first, emulating historic Egyptian artists' painted low relief techniques.

In the seventh lesson, students examine reproductions of pre-historic and historic architectural sites, many from the World Heritage List, and speculate about what contributed to their deterioration and what threats still exist. Possibilities include climatic conditions, warfare, pollution, theft, modern transportation, and tourism.

In the eighth and culminating lesson, students visit a historic (or pre-historic) architectural site of cultural significance which people are trying to conserve and/or restore. The teacher and students might identify any site that they believe should be conserved or restored within their community. If possible, students observe any processes of conservation or restoration underway at the site (see Figure 3). They also might initiate site conservation or restoration.

In the final performance assessment, the teacher again displays large color reproductions of the World Heritage Site, Angkor Wat. Once again, she or he asks students to decide whether or not it is important to conserve or to restore the site and why. After students have written their responses about conservation and restoration, the teacher again asks them what questions they might ask an expert to help them make a better decision.

Results. The results of this exploratory research project provide evidence substantiating the effectiveness of teaching a conservation unit on students' understanding of conservation issues. Students were asked to apply their newly acquired knowledge of conservation to an unfamiliar architectural World Heritage site, Angkor Wat. Evidence reveals that a number of students improved their knowledge-seeking strategies through: (a) increased ability to formulate questions; and (b) expanded ability to seek the perspective of others. Results also indicate improved student understanding in the disciplines of art making, art history, art criticism, and aesthetics (Erickson, 1997).

Many students showed improvement in their ability to use knowledge-seeking strategies (see Koroscik, 1996). Fifty-six of the 85 students asked different questions about Angkor Wat after the architectural unit than before. For example, a fourth grader showed some awareness of construction and building process on his initial assessment. He wrote "What kind of stone was it made out of?" and "How long did it take to build?" On the final assessment, he asked two questions focused specifically on

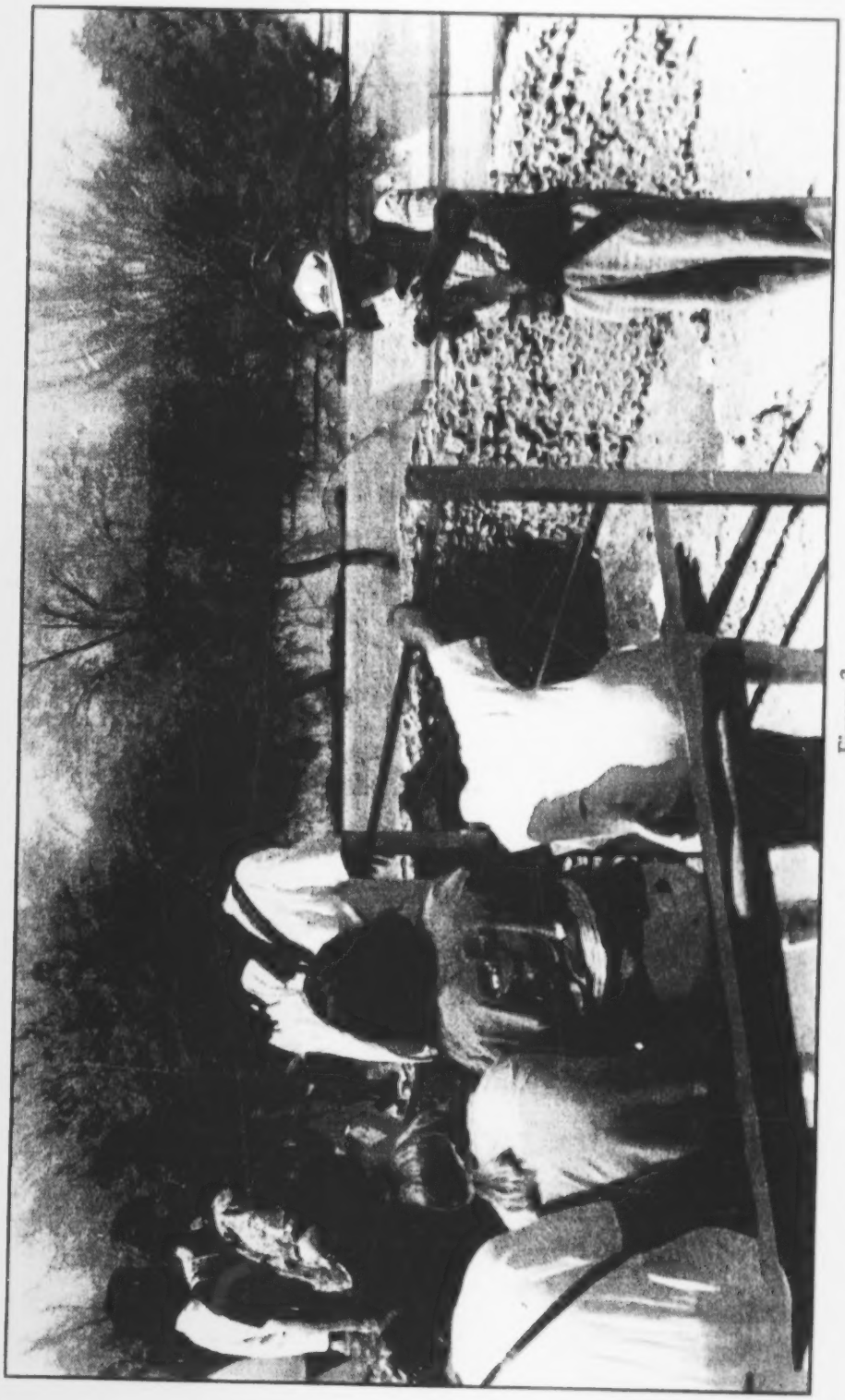

Figure 3
Students on a field trip to a pre-historic built environment. Art Education Conservation Project, Arizona

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conservation and restoration processes. He asked "About how long would it take [to] fall over if we don't conserve it?" and "Should low-flying planes be able to go near the old Temple?" In another instance, an eighth grader asked only "How much money will it take to restore it?" on her initial assessment. On the final assessment, she repeated her question about cost but added three more questions "How long will it take to restore it? Do Cambodians still use it as a Temple?" and "What kind of materials would be used to restore Angkor Wat?"

After instruction, some students also showed evidence of the ability to inquire about and seek the perspective of others. For example, an eighth grader wrote on her initial assessment that it was not very important to conserve Angkor Wat because "I will never see it." After instruction, she still argued that it was not very important to restore Angkor Wat, but for a much more sophisticated reason, "Maybe the people who live there did not want it touched."

A number of students increased their attention to the discipline of art-making as they considered the importance of conserving or restoring Angkor Wat. For example, two fourth graders, who did not address artmaking on their initial assessments, wrote on their final assessments "What tools did the people use?" and "It cost [sic] a lot of work to build."

Students' understanding of art history expanded as they studied Ancient Egyptian, Native American, and other architectural sites. For example, a fourth grader, who asked only about the Temple itself on her initial assessment, added a question about the historical makers after instruction: "What gave them the idea to built it like that?"

Students' understanding of art criticism also evolved as they studied conserving and restoring architecture. For example, many students posed questions that could better inform their interpretations of Angkor Wat. After instruction, two fourth graders asked "What does [the Temple] represent?" and "Does the name mean anything?"

One issue in aesthetics came up repeatedly. Many students considered artistic values and non-artistic values involved in decisions about conservation and restoration. For instance, on her initial assessment, one student wrote that the Temple should be restored because "It will look better." On her final assessment, she argued that it should not be restored because left as it is "you could remember the old time and learn more."

Summary

Historic built environments embody the cultural heritage of a people. They constitute a "tangible, direct, concrete, and specific expression of human creativity, beliefs, aesthetics, rituals and lifestyles" (US/ICOMOS, 1991, p. 6). Architectural conservation seeks to retain the cultural significance of a building or place and provide for its maintenance, its security, and its future.

As the move of the Temple of Ramses II demonstrates, historic built environments can be threatened by destructive forces of nature and human circumstance. The destructive action of water, for example, is not limited to natural or man-made floods. Moisture from rain and associated capillary action, humidity, condensation, snow,

and ice, also harm historic structures. Additional threats include world population explosion and technological innovations which generate "unchecked development, environmental pollution, growing tourism, and increasingly destructive methods of warfare." (Getty Education Institute, 1996, p. 5)

Art educators are in a unique position to awaken and sustain interest in the cultural significance of endangered places. Students, exposed to conservation issues by inquiring into history, aesthetics, criticism, and artmaking appreciate the significance of people's efforts in other times/places, develop respect for their own cultural inheritance, increasingly value the cultural heritage of others, and grasp the relationships between their own heritage and the heritage of peoples throughout the world (Erickson, 1997; UNESCO Special Project 1996-97).

Educating young people about cultural heritage is vital if these historic places are to survive. "Today's students will become the archaeologists, botanists, architects, geologists, historians, tourism managers, public servants, elected officials, and tourists of the future" (US/ICOMOS, 1992, p. i). By studying conservation issues related to the historic built environment and preservation of cultural heritage in both global and local contexts, students can begin to think of themselves as world citizens, exploring the roles they can play and the contributions they can make to safeguard humanity's historic architectural and cultural heritage both now and in the future.

Author Note

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Participants in the Arizona Project were Pat Jones (Supervisor), Liza Bergman, Greg Patrenos (Cartwright Elementary School District) and Sue Raymond, Lorna Corlett (Paradise Valley School District). Both School Districts are located in Arizona. The game, "Artifacts: Understanding Designs for Life" is available through CRIZ-MAC Art & Cultural Materials, Tucson, Arizona.

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AESTHETICS OF PLACE AND THE ANASAZI WORLD VIEW

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Questioning the nature of art and architecture often leads to a discussion of ideas that come out of the tradition of European philosophies. The cultural production of people whose values and beliefs developed independent of European influences are generally excluded from the "Western" canon of fine art. Therefore we wonder if artifacts, crafts, tourist art, etc. may be considered "art," and if the traditional structures and built environments of Native Americans are "architecture." Yet, many world views have influenced spatial concepts throughout the world, and aesthetic discussions can also spring from those philosophies. This chapter examines possibilities for cross-cultural aesthetic inquiry into the nature of architecture by proposing a framework of ideas for thinking about the Anasazi structure, Pueblo Bonito.

The notion of art in "Western" culture implies that such objects become part of museum collections which are outside the lived reality of most people. Forms of fine art are thought to be mainly painting and sculpture rather than e.g., weaving and pottery. Buildings that are classified as architecture are usually not the homes of ordinary people. Fine art has been defined based on its beauty, realism, formalist or expressive qualities, etc. Modern architecture often soars skyward, gives the impression of weightlessness and permanence, and is built on a grand scale with minimal external decoration.

The interrelationship between art and life, however, is essential to a cross-cultural aesthetic understanding of art and architecture as the material expressions of cultural beliefs and values in all societies. Therefore, reflections on the nature of architecture should be informed, not by 20th-century "Western" values such as permanence, individualism, and progress, but by the social systems and cultural values of the people who built it and lived in it.

Space is a cultural invention that both reflects and affects societal concerns. Architectural structures serve basic human needs such as protection from the forces of nature and from human enemies, social organization, and the need for an aesthetically pleasing visual order within the natural environment. The construction of human space, as evidence of culture, can communicate (a) how human groups adapt to local environments and make use of locally available materials; (b) the technical knowledge

and styles that determine architectural forms; and (c) the cultural beliefs and values that humans devise as ways of ordering the world such as communication and temporal and spatial notions; social, economic and political structures; and world view (Hall, 1966; Rapoport, 1969). For Native Americans, spatial arrangements define notions of home and community that are central to what it means to be human, to belong to a family and a social group, and to be part of a sacred universe (Harvey, Harjo, & Welborn, 1995).

The Anasazi building of Pueblo Bonito in Chaco Canyon, New Mexico offers possibilities for discussions of cultural values and social behaviors, which developed outside European influences, that contributed to aesthetic choices in architecture. Although there is a great deal of mystery about the Anasazi because they left no written records, it is possible to reconstruct some of the meaning this building had for these ancient Pueblo people. But to do so, aesthetic discussions concerning Pueblo Bonito must be considered from the perspective of the Anasazi People. For example, What materials did they use and what technology and conventions did they develop? What can the spatial organization of Pueblo Bonito tell us about Anasazi behavior and social structure? What cultural beliefs influenced Anasazi buildings? How would Pueblo Bonito have functioned in Anasazi society? How did Pueblo Bonito reflect Anasazi identity and their place in the universe?

The Anasazi People

Humans occupied southwestern North America for probably 10,000 years before the recognizable characteristics of Anasazi culture began to appear around 100 B.C. (Ambler, 1989). The early Anasazi, called *Basketmaker* for their skill in weaving food containers and sandals, began developing agricultural and ceramic skills while continuing to hunt and gather. They also adapted the semi-subterranean pit-house style of architecture from their neighbors, the Mogollon and Hohokam, reflecting a loose social organization and nomadic life style during this period.

By about 700 A.D., however, the Anasazi developed a radical new form of aboveground architecture, the unit pueblo. These structures were made of adobe mortar and stone and beamed with roofs of wood and adobe. Single family houses and storage rooms were grouped together and on top of one another, with ladders connecting the various levels (Waldman, 1985). The permanence of these settlements reflected a growing dependence on agriculture and contributed to the further development of irrigation systems and pottery technology.

As the Anasazi became a settled agrarian people they were more dependent on the climate because of the short growing season and the need to anticipate the seasonal rains that came to their arid country twice a year. Movement of the sun determined the times for specific crop plantings, preparation for rainfall, and the Anasazi ritual calendar. Rainfall could sometimes be untimely, however, and droughts could cause crop failures for several consecutive years, making it necessary to store large quantities of food for long periods of time. This need for large and secure storage and mutual aid during extensive dry years encouraged the development of larger communities and alliances with neighboring groups (Brody, 1990).

One of those groups, the Chaco Anasazi, constructed Pueblo Bonito about 900 A.D. in Chaco Canyon, one of the most arid spots of the southwest. It was the center of what is today referred to as the *Chaco Phenomenon*, an Anasazi system of built structures and roadways that flourished until about 1300 A.D., when the Anasazi migrated. This was a culturally rich period of painted pottery, woven cotton and feather clothing, intricate mosaic designs, and turquoise jewelry. Architecture also flowered, and at least 14 large, planned, multi-storied structures known as Great Houses were built in and around Chaco Canyon. Chacoan walls were unique and are still identified by a masonry core that is faced with a veneer composed of patterns of alternate bands of thick and thin stones (Hayes, Brugge, & Judge, 1981).

The natural and built environments of Pueblo Bonito provided solar markers for determining the winter solstice and the beginning of the new year, the coming of spring and planting, and the time of the expected rainfall. Today natural features on the horizon around Chaco Canyon, which once served as a calendar for the Anasazi, can still be observed. At the end of October, when this natural calendar fails, a thin stream of sunlight first appears in a corner window in the southeastern section of Pueblo Bonito. That window eventually provides a clear view of the winter solstice sunrise that would have told the Anasazi Sun Watcher that the sun was again beginning its travels north and spring was approaching (Zeilik, 1984).

Anasazi Architecture and World View

Outside the "Western" art-world tradition, people often do not separate art or architecture from their lives. They may decorate objects or construct buildings that function in both sacred and mundane capacities in society. The Anasazi made beautiful objects for cooking, gardening, storing food, etc. Decorated objects were also made to function in the ceremonies and rituals of Anasazi sacred life. Some rituals would have been everyday occurrences, such as the blessing of a home, others, such as community dances in a central plaza, would have taken place on special occasions such as the winter solstice.

The built and natural environment of the Anasazi also functioned as part of their sacred and everyday world. Kivas and plazas were spaces for rituals and ceremonies while unit pueblos were places for living. Plazas were community areas while domestic units and kivas were spaces for family or kin groups. Women worked on terraces and in domestic units, while men worked in the fields and kivas. These everyday and sacred spaces contributed to a sense of belonging and group cohesion.

Anasazi culture developed in an area where survival depended on people living in harmony both with each other and with their environment. Both everyday and sacred objects and buildings expressed the spiritual core at the center of Anasazi life and the interaction between Anasazi social order and environmental factors. The Pueblo descendants of the Anasazi have preserved many of their Anasazi-derived values and continue to try to live in harmony with the universe. Their origin stories provide insights into Anasazi spatial concepts.

Contemporary Pueblo Indian origin stories describe a journey upward, usually through three underworlds, to this, the fourth level. During the journey upward to

Mother Earth and Father Sky the people evolved, becoming more human. When they came out from the earth mother through a hole, called the *sipapu*, the people faced new dangers as they began a search for the center place, or earth navel. Thus, every pueblo may be considered a sacred place, or earth navel, bounded by the four sacred mountains that define the group's home territory. The *kiva*, or navel of navels, is the center of ritual activity. For the Pueblo, rituals are a means to recreate harmony with the universe that is considered essential for a good and successful life (Brody, 1990).

Geography and Aesthetics of Place

The Anasazi adapted to the semi-arid region of the San Juan Basin in New Mexico with its droughts, sandstorms, flash floods, winter blizzards, and extreme summer heat. They used its rock, clay, water, and trees to make their homes. Early pit-houses were sunken in the ground to protect people from the heat and cold. As the Anasazi became more dependent on domesticated corn, their surface dwellings reflected a need for storage and group-sharing as a hedge against drought and crop failure. Square cubicles were built as storage and living spaces and combined so that adjoining units shared walls and roofs, and one family's roof was another family's terrace. These spaces surrounded the sacred kivas and ceremonial plazas. Kivas, or old houses, often retained the round shape of pit houses and were below ground to show reverence for the ancestors (Nabokov & Easton, 1989).

Unit pueblos were built close to the ground, piled up to look like a mountain, with the flat tops of mesas. Made of sandstone, these buildings appear to be outgrowths of the earth. Spiritual beliefs of the Pueblo descendants of the Anasazi continue to be based on their connection to the earth—the place the spirits live, the place from which the first humans emerged, the place each person will return upon their death, and the "homeland given to the ancestors of the Pueblo people by a divine being at the beginning of time" (Sando, 1992, p. 22).

Centering and Pueblo Life

The layout of pueblos indicates family living, storage, work, community activity, ceremony and ritual. By building houses with adjoining walls and ceilings, working together, and sharing resources, the Anasazi ensured their survival in an inhospitable climate. Modern notions of privacy and personal achievement would not have been understood by the Anasazi. Many activities such as planting and tending crops, caring for drainage and irrigation systems, plastering walls and remodeling rooms would have been done by groups of people from several households working together. Many ceremonies involved the entire village so that the plaza was the center of community life (Jones & Cordell, 1985).

At the center of the spiritual life of the pueblo, kivas were a place for private ritual as well as a workplace for the men belonging to a clan, much as they are in modern pueblos. Kivas still contain a sacred cavity or *sipapu* symbolizing a door to the underworld where the spirits live, and the opening where the first people emerged from the earth. Long ladders extend out of the hatchways of kivas symbolizing the

link of the present world with the underworld of spirits, and of the sky to the earth. For some ceremonies the participants emerge from the underground kiva and dance as their ancestors did when they came from the original *sipapu* (Ortiz, 1994).

The Great Houses of the Chaco Phenomenon were larger than most pueblos, and were built as planned structures with finely crafted masonry walls. Smaller houses surrounded these Great Houses; and roadways, extending in straight lines over landforms rather than curving around them, led to outlying pueblos and to the highland areas around Chaco Canyon. At the center of Chaco culture, Pueblo Bonito was the largest of the Great Houses. Evidence seems to indicate that it was more than just the home of a single group of Anasazi. It is the oldest and largest of the Great Houses. Built in four major stages, it had five levels and contained 800 rooms. While most Anasazi structures contained one plaza and had one or several kivas, Pueblo Bonito had two large plaza areas and 37 kivas (Hayes, Brugge, & Judge, 1981). It is thought that Pueblo Bonito may have been a center for trade, a food storage and redistribution system, as well as the symbolic home of the Chaco Anasazi and a center for their ceremonial life.

The spatial organization of Pueblo Bonito offers clues to an Anasazi world view that faced inward. Just as contemporary Pueblo potters build their vessels by "centering" the coils on a base or support, Chacoan architecture symbolizes a centering of spaces resembling the solar system with Pueblo Bonito at the center of other Great Houses which are surrounded by smaller pueblos. The Anasazi architectural ideal of residential unity around a common center—the kiva and plaza at the center of the pueblo, and Pueblo Bonito at the center of the Chacoan world—is a mirror of the sacred religious beliefs that were at the center of the Anasazi people's lives.

Spiritual activities, prayer and ritual are still the center of the lives of contemporary Pueblo people. "The Pueblos have no word that translates as 'religion.' The knowledge of a spiritual life is part of the person twenty-four hours a day, every day of the year" (Sando, 1992, p. 30). Dwellings provide more than shelter, they are ideological protection for the essential spiritual nature of the people. Today, plazas are still the center of pueblo life, areas of public ceremonies embodying the notion of sacred, shared, center-space, enclosed by residences. Beyond the village walls are gardens and small houses men use while they tend the crops, "still farther into the countryside lay sacred springs and cave shrines—the entire matrix of special places enclosed by four holy mountains that usually bounded and nurtured each Pueblo territory" (Nabokov & Easton, 1989, p. 368).

Possibilities for Art Education

This chapter raises several issues that are essential to the teaching of aesthetics and architecture: How can we set aside "Western" ideologies and contemplate how Native Americans, themselves, thought about their buildings and the manipulation of their environment? What can we learn about the people who built and used Pueblo Bonito when the building is in ruins and the Anasazi left hundreds of years ago? Some of the answers may come from studying the archeological remains of the buildings themselves, and some of the answers may come from the Pueblo descendants of the

Anasazi. Pueblo people have struggled since the European intrusions to retain their culture and religious beliefs, yet they have also adapted to modern society. Tradition and change is reflected in their built environment. Contemporary Pueblo architecture retains the importance of a central, community space, although today people may live in separate family homes with modern conveniences (Nabokov & Easton, 1989).

How can the students we teach, who view the world from a "Western" perspective, learn to value the heritage and respect the identity and beliefs of people whose way of life has roots outside European traditions? Often stereotypes about Native Americans can cloud their understanding, just as it has hindered scholars. We can help students respect the worth of all cultures which are variations of the great potential of human ability. If students can understand that people have adapted in creative ways to the many environmental and social conditions of our world, instead of classifying "Western" art and architecture as "high" culture and the rest as lesser forms of culture, then we have opened their minds to tolerance and understanding. From a global perspective, human issues can inform aesthetic inquiry and the ways we understand the nature of architecture.

Aesthetic questions will then go beyond deciding what is art or architecture from a "Western" perspective, to discussions of what is meant by the various ways space has been designed and arranged and how philosophies and values are expressed by the built environment. To understand the role of architecture in transmitting cultural values, students can reflect on their own cultural concepts such as home and family, time as circular or progressive, or religious beliefs and concepts of the afterlife, and how these ideas have influenced the spatial design of their environment.

The theme of "home" can be developed by comparing students' concepts of home for a nuclear family to the Anasazi concept of community home and the Native American concept of connection to the land. The study of architecture can help students understand that home is more than a physical dwelling, that homelessness is more than a loss of shelter, and that, for Native Americans, loss of their homelands also meant disconnection from the spiritual and cultural beliefs that nourished their ancestors.

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PERSONAL SPACE AND PUBLIC PLACE: ARCHITECTURE AND NARRATIVE IN BUILT ENVIRONMENT EDUCATION

Laura K. Guinan
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This chapter rests upon four basic premises: 1) that architecture is a dynamic concept based upon individual and social relationships to the built environment; 2) that we can understand and teach architecture in a non-hierarchical, non-objectified, inclusive and caring format by using spatial and architectural narratives as a medium for discovery; 3) that architectural narratives provide a basis from which we can learn more about ourselves and others within various social, historical, and political contexts; and 4) that we can develop strategies for action and change in the built environment with ethical attitudes developed through our understanding and recognition of others.

Introduction

In this chapter, "narrative" is proposed as an approach to curriculum and pedagogy in the teaching of architecture in the art classroom. The recognition of narrative relationships in the built environment serve as viable means for understanding and teaching about architecture. Narrative, as defined in this chapter, is the chronicling or telling of events and experiences in such a way that they form a story. Stories serve as platforms for dialogue that acquaint us with ourselves, others, and the dynamics of the social, political, and historic contexts of our lives. The ideas of narrative in relationship to architecture, ourselves, others, and our communities are introduced, and implications for teaching about the built environment in the art classroom are identified.

For example, narratives can act as vehicles for understanding and teaching about architecture and the spaces of the built environment. The tenets laid out in *Stories Lives Tell: Narrative and Dialogue in Education* (Witherell and Noddings, 1991) can act as guidelines for pedagogical and curricular development for teaching architecture in the art classroom. Authors Carol Witherell and Nel Noddings (1991) note that a narrative pedagogy is founded upon three assumptions: 1) "that we live and grow in interpretive meaning making communities"; 2) "that stories help us find our place in the world"; and 3) "that caring and respectful dialogue among those engaged in edu-

cational settings—students, teachers, administrators—serves as the crucible for our coming to understand ourselves, others, and the possibilities life holds for us" (p. 10).

The use of narrative in education requires that we situate ourselves in the world in relation to other persons, groups, cultures and environments. Using narrative honors experience and importance is placed upon non-objective, non-hierarchical modes of teaching. As a part of a built environment curriculum, this encourages teachers and students to use their own narratives, with respect to the narratives of others, as a basis for exploring, questioning, and challenging existing architectural paradigms. From this relational context, Witherell and Noddings (1991) suggest adopting ethics of "care" and "reciprocity" to act as the basis for developing a socially critical view of the narratives we employ.

Defining Narrative and Architecture

Narrative is often recognized as a story, tale, or recitation of events linking time, place and beings. As defined, narrative is "a story of events, experiences, or the like." (*The Random House College Dictionary*, s.v. "narrative," 1982) Histories, novels, family photo albums, movies, paintings, diaries, dreams, imagination are all narrative ways in which we chronicle our existence. Philosopher David Carr, in his book *Time, Narrative and History*, (1986) asserts that "ordinary experience" found in narrative or story telling provides a key to understanding the "pre-theoretical" and "pre-thematic" relationships that are a part of perceptual developments (p. 18). In terms of architecture we might understand "pre-theoretical" and "pre-thematic" relationships as the existential elements of a space specifically composed of topographical space and essential character—"things" that make up perception prior to rationalization or narrative construction (Norberg-Schulz, 1979, p. 5). Carr (1986) claims that, "narratives, whether historical or fictional, are typically about, and thus purport to represent, not the world as such, reality as a whole, but specifically human reality" (p. 19) He goes on to clarify "reality": "Any significance, meaning, or value ascribed to events is projected on to them by *our* concerns, prejudices, and interests, and in no way attaches to the events themselves" (p. 19) So it is not space itself that is dynamic, but our relationship to its substance that is made active primarily through perception and secondarily through narrative construction.

Underlying contemporary narrative theory is the idea that we understand our lived experiences not through the arrangements of objective information in sequential patterns, but through the subconscious organization of physical, phenomenal (memory, imagination, dream, etc.), social, and historic perceptions of existence necessarily expressed in terms of time/space relationships. David Carr (1986) argues that narrative construction is evidence of active participation in making choices based upon what we know both abstractly and phenomenologically. The way we construct our narrative is also dependent upon our relationships with history, culture, and other people, either as groups or as individuals.

Narrative can embody a voice of moral authority and is therefore a source of power and manipulation. In *Mythologies* (1991), Roland Barthes explains that because narrative can be accessed through language and language inherently lends itself to appro-

priation, narrative, by its very existence, is controlled by those who possess power to manipulate language. Narrative is thus a social construct at the same time it is an individual one. Narrative is a locus for power struggles. Carr (1986) envisions a definition of narrative that encompasses the temporal existence of the individual as well as that of the group, community, or society as a whole. Carr is careful to make distinctions between the experiences, actions, and life of the "I" as different from those of the "we." Of primary importance to Carr's definition of the social narrative is that social or historical temporality considers, "time centered on the group, not the individual; yet it makes possible an account of that temporality from within rather than from without, that is, a view of the community, not as an object or entity within the world but from the perspective of the communal experience itself" (1986, p. 150). Carr goes on to explain that there is a danger in merely substituting the plural "we" for the singular "I" without paying sufficient attention to the "plurality of the plural." We must avoid the tendency to generalize about the group based on the singular experiences of an individual. Carr explains:

> When I tell myself a story in order to act it out, it is one person who is performing this reflective act of narration. If we say by contrast, in the case of the group, that *we* tell, *we* listen, and *we* act, it is legitimate and appropriate, precisely because of the plurality of the group, to ask: who tells, who listens, who acts? (p. 150)

If, as Roland Barthes (1991) suggests, narrative is the site of power struggles and manipulations, then it seems essential to identify agency within the narrative structure of both the group and the individual. Thus, narrative retains the potential to be a medium of individual and social empowerment and vehicle for change.

Narratives provide ways for understanding who we are, where we have been, and what the future holds. Narratives function within both the private realms of the individual as well as the public and political structures of the social body. "We live and invent our lives through our texts,...decisions as to which stories will be told and which suppressed not only give definition to a life but serve as a form of power" write Carol Witherell and Nel Noddings (1991, p. 1). Narratives are found in many ways in our built environments: the way we physically move through a building or a garden in time; the memory or history evoked through particular materials, shapes, and forms in our built worlds; the personal experience or story employed by the architect in the design of a space; the relationship of individual buildings to the growth of our neighborhoods, communities, cultures, etc. Narrative in architecture is the marking of being in relation to time, space, people, culture, ideas, and physical topographies.

A meaningful understanding of architecture encompasses human social, historical, and political relationships as well as style, form, and theory. Using narrative pedagogy to understand and teach about architecture in the art classroom, provides new strategies for connecting lives (both personally and socially) through the built environment. This approach encourages understanding the spaces of our lives through what we know and what we have experienced as well as the way these relationships to the built environment figure into broader social and historical contexts. Using narrative, we

view the individual as a participant in a set of relational circumstances that are historical, political, and social and most importantly always developing in relation to the surrounding world. Applying this pedagogy to architecture, we retain the potential to develop both intimate and global understandings of our environments.

To make architecture meaningful, it is crucial to consider the human and social relationships inherent in architectural forms and spaces, and how we relate to them. These relationships cannot be ignored. For just as we may attribute minute personal associations to details in a room, on a much larger scale the tapestries of our individual lives are composed of fibers specific to our own environments, histories, and social circumstances. The very structures of our built environments connect us not only to personal memory, but to those with whom we share our world and those who have come before us.

An Architectural Narrative: Architecture, Individuals, and Communities

The stories our lives tell are permeated with spatial relationships particular to the way we understand ourselves and architecture both as individuals and as a social body. From the most intimate and personal experiences with space to social realities revealed through public places, the architectural narrative is an active and dynamic set of connections to person, space and time. The following narrative is one example out of many that relates the theory discussed here to a real life situation.

> Pepe Otero's place evolved slowly, as so many building projects do.
> It began as a rudimentary shell made from skids, the wood platforms used for delivery of heavy goods that have become the makeshift building blocks of the street. Time passed. And in a grim symbol of the seeming permanence of his situation, Mr. Otero's shell grew.
>
> Patricia Leigh Brown
> *"The Architecture of Those Called Homeless"*

Patricia Leigh Brown presents a sensitive and critical view of these marginalized encampments by presenting different perspectives on the development of "street architecture" by New York City "homeless" persons (*The New York Times*, 28 March 1993, p. 1). What is particularly compelling about this article is the presentation of peoples' lives who are not normally recognized in our society. The story of Pepe Otero and others who are considered "homeless" are stories not often heard. Like all personal stories, Pepe's story is deeply embedded in culture, history, language, gender beliefs and politics. And so is Pepe's architecture.

A native Puerto Rican, Pepe Otero came to New York looking for work. Unable to make ends meet, he found himself giving up the squalid conditions of his rented room in Tompkins Square Park for the relative privacy of his own makeshift structure. Mr. Otero is numbered as one of New York's "most vulnerable citizens." Pepe lives constantly with threats of harsh weather and dangerous crime. "He has no plumbing

or heating. He bathes in a pail of water hauled from a nearby fire hydrant and heated over a gas burner. His toilet is a white plastic bucket lined with a garbage bag, tucked inconspicuously in a corner and emptied twice a day." (p. 32) Pepe Otero's architecture is inseparable from his way of life. His space evolved out of an essential need for privacy and shelter and his materials come from his immediate environment (fig. 1). "White bed posts and perforated orange bread crates form an entrance gate; plexiglass and refrigerator shelving set into diamond-shaped frames form windows. Mr. Otero, who is admired for his handiwork, has even built a marquesina, or portico, over the front walk." (p. 32) Lately, Mr. Otero has added a turquoise-and-white canopy to his porch that he encloses in colder months, and has begun to extend the perimeters of the roof.

Innovation is part of survival. Pepe Otero is one of many "street architects" in New York City. Encampments like those pictured here (fig. 2) and in photographer

Figure 1
Pepe Otero with Cross. Photo © Margaret Morton, from the forthcoming book Fragile Dwelling, photograph courtesy Eighth Floor Gallery.

Margaret Morton's book *Transitory Gardens* (1993) are not unusual in many large urban areas. Often these improvised shanties are constructed in clusters on marginal property found at the edges of the city. Patricia Leigh Brown insists that a common reason for rejecting the city's shelter system is lack of security and privacy. As haphazard as the settlements might be, they foster a sense of security, community, and individual identity. Mary Brosnahan, the executive director of the Coalition for the Homeless in New York City, warns those planning future housing for the homeless that "street architecture" is a "rejection of the institution of shelters where your soul is checked at the door" (p. 32).

Mr. Anderson, a neighbor of Mr. Otero's, feels good about what they have done. While not being overly optimistic, Mr. Anderson talks openly about his own construction: "It took character to build that [referring to his construction]. A lot of feeling went into it. Building it shaped my attitude. You realize you can do things for

Figure 2

Bushville from south entrance. Photo © Margaret Morton, from the forthcoming book Fragile Dwelling, photograph courtesy Eighth Floor Gallery.

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yourself. People who build for themselves have an interest in themselves. As long as you don't forget, you're not forgotten...A home [he adds] is the idea of who you are" (p. 32).

In recording the "architecture" of a few marginalized people like Pepe Otero, their story, their achievements, and their efforts become significant. The narratives of these individuals can function as a platform for architectural discourse that can inform both the theory and practice of teaching about the built environment.

Using the Architectural Narrative In Education

Though we cannot know Pepe Otero personally, we can listen, ask questions and try to relate to his story with a caring attitude. As an educational medium, narrative initiates dialogue in and amongst ourselves as individuals and as a group. Not only might we begin to know the lives of others with whom we may not be familiar, but we can ask questions about the nature of their constructions and more broadly, the nature of architecture. What constitutes a "home" as opposed to a "house"? How is the idea of "home" central to all of our needs? What is the relative role of "street structures" if, as social theorist Richard Sennett says, "The foundation of self-respect in our society is not having cash, but a place to live,..." (*The New York Times*, 28 March 1993, p. 32)? Moreover, what kind of relationship does "street architecture" have to the "established architecture" of high-rise buildings on Madison Avenue? Embedded in a question like this are a myriad of architectural issues that reveal inequities within the paradigms and practice of conventional architecture. High-rise buildings in any city traditionally serve a population segment that is economically privileged and often powerful. On the other hand "street architecture" is created by and for those who are traditionally under-served by the profession of architecture. As architecture theorist Margaret Crawford points out in *Out of Site: A Social Criticism of Architecture* (1991), there are many individuals and groups whose needs are not being served by status quo architecture: "the homeless; individuals and families excluded from the real estate market, communities threatened by decay or development; elderly, poor and minority groups with inadequate housing" (p. 44). Our social and personal lives are rich with shape, meaning, and texture when narrative dialogue is exchanged, but narrative should not be de-politicized through too much poetic introspection. There is undoubtedly much in Patricia Leigh Brown's article to contemplate about both the individual struggles and accomplishments of the "homeless" and the political nature of their situation, especially in relation to the institution of architecture. In her book *The Tunnel* (1995), Photographer Margaret Morton, whose images are featured here, has combined her documentation of "homeless" structures with the compelling narratives of those whose lives have become inseparable from their marginalized architecture. Linking stories to structures, narrative dialogue has the potential to engage both the poetic and the socio-political in ways that bridge what is often viewed as two separate and unrelated spheres.

The issues concerning the built environment woven throughout the stories of Pepe Otero and others demand attention both in terms of cultural politics and teaching about architecture. As previously stated, Carol Witherell and Nel Noddings suggest

negotiating the territory between the personal and the political with an ethic of "care" and "reciprocity" as a moral guide. "Care" is employed through the "interconnected web of [narrative] relations—one that defines the self in relation to particular others, to groups, to communities, to many cultures, including our emerging global culture" (Witherell and Noddings, 1991, p. 5) "Caring" can take on multiple levels of meaning: from the attachments we form towards people, to the way we attend to the earth, its inhabitants, resources, and well-being. Caring and giving relationships have the potential to cross traditional boundaries through the exchange of stories.

In using the *New York Times* newspaper article as an example of architectural narrative, the opportunity for dialogue or exchange with those represented in the story is limited to our own supposition and imagination. There is great danger in appropriating, aestheticizing, and objectifying other people's stories and experiences. However, if the stories of those whom we do not know are approached, as Witherell and Noddings suggest, with caring and respectful dialogue, perhaps objectification can be avoided through an exchange that is not necessarily literal. In other words, reciprocation can come from an increased awareness or knowledge of another's story. We cannot directly exchange experiences with Pepe Otero, but we can offer a listening ear with the potential to change our attitudes and ideas about architecture based upon new understandings. Situating ourselves in a narrative pattern forces us to acknowledge ignorance, difference, and multiplicity while making decisions and choices based on an ethic of "care." In this instance, we come to know ourselves both as individuals and as a social group through issues in Pepe's narrative. Speaking particularly about a narrative that challenges the way we think about architecture, we can involve ourselves and our students within relational contexts that serve as a ground for empowerment and change.

Stories like Pepe Otero's, for example, add depth and breadth to our understanding of Margaret Morton's photographs and the architecture they depict. Similar narratives may also be motivating factors behind the work of unconventional architects such as Lee Ledbetter and Gustavo Bonevardi or the "Madhousers." Ledbetter and Bonevardi have taken the initiative to design and build housing for homeless people with AIDS. The "Madhousers" are an Atlanta-based group of architects who erect shelters for the homeless on vacant land in the metropolitan area. Since what they do is illegal, they must work anonymously. "The group does not think that theirs is the best solution to homelessness," writes architecture critic Herbert Muschamp, "also they are aware that this solution would not work in many cities,...They do believe that for some of the roughly 200 people they have housed, using one of these huts has provided enough economic stability for eventually affording an apartment." (Muschamp, 1992, p. 103) As educators, the actions of these architects and the stories of those like Pepe Otero can serve as models for an architecture that is inclusive, non-hierarchical and dynamic. Our communities are amalgamations of poetic nuances and gritty politics. Thus, it seems that this kind of architecture engages notions of promise and potential within community relationships as well as effects political and cultural paradigms.

More than being just "good stories," narrative can be a way in which we define our experiences of existence. A story of "homelessness" adds dimension and value to indi-

vidual situations and architectural structures. As individuals struggling to maintain identity, we would like to believe that those featured in Patricia Leigh Brown's article and Margaret Morton's photographs felt a sense of pride and significance as they identified their narratives. Mr. Otero is pictured by Morton seated on his canopied porch, chin raised with a sense of dignity and self-respect. The street structures are both the impetus for narrative dialogue (after all, the structures, rather than the people, are what initially caught the attention of both Brown and Morton) and the texts of the narratives themselves.

As educators, we can observe, examine and monitor our own narratives while encouraging the narratives of our students. Giving significance to the personal not only leads to empowerment, but it helps us to discover the uniqueness of our own voices. The development of the individual, within the realm of the social, historical, and political negotiates the space between introspection and awareness, and social criticism and activism. Using these as guidelines for studying the architectural narrative in built environment education, we are able to bring meaning and perspective to both the public places and private spaces of our lives. The following are some specific steps that we might take in the classroom towards satisfying these goals.

Using the Architectural Narrative In the Classroom

Stories such as Pepe Otero's imply that we should consider the specific needs of special groups such as the homeless. We must not treat these groups as generic masses, or people with symptoms to be "cured," but as individuals (like Pepe Otero) with specific stories, lives, and needs. We can look to alternative forms of architecture like the shanty towns found in New York City, documented and recorded by Margaret Morton. Or we can look to the work of architects like Lee Ledbetter and Gustavo Bonevardi, or the "Madhousers" for architectural dialogue. These architects are already challenging the systems in which architecture is made by creating spaces and constructions for those like the homeless who are consistently excluded from the services of mainstream architecture and culture.

In giving attention to both the poetic nuances as well as the socio-historical implications of the architectural narratives we explore in our classroom dialogue, we begin to dissolve some of the dichotomies and dualities that keep these spheres separate. By acknowledging that architectural narratives contain both intimate experiences as well as gritty politics, we are able to understand architecture as a complex and dynamic concept. Architecture becomes not only a subject to be studied, but an essential part of the narratives of our lives.

As educators, we should go beyond typical formal study of "sanctioned" architectural structures and give equal attention to the architectural creations of those not traditionally served by conventional architectural practice. Strip malls, tract housing, industrial development sites, and the constructions of non-architects such as Pepe Otero's shanty or our students' tree houses are all opportunities for architectural dialogue. Narrative and dialogue concerning the architecture of our everyday lives also has the potential to reconnect us to ourselves, each other, our environments and cultures.

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Laura K. Guinan is a practicing artist and an adjunct instructor of art in the Visual Arts Department at Casper College, Wyoming. In her research, art and teaching, Ms. Guinan explores the connections and interactions between human beings and their natural and built environments.

About the Photograher

Margaret Morton, a documentary photographer who lives in New York City, is an associate professor of art at The Cooper Union. Since 1989, she has documented the dwellings that homeless individuals create for themselves in public parks, vacant lots, along the waterfronts and beneath the streets of New York City. Photographs from her ongoing project, *The Architecture of Despair,* have been published in *Transitory Gardens, Uprooted Lives,* (Co-authored with Diana Blamori, Yale University Press, 1993), and *The Tunnel: The Underground Homeless of New York City* (Yale University Press, 1995; Schirmer/Mosel, Germany, 1996).

Her project has been funded by a National Endowment for the Arts Visual Artist Fellowship Grant in Photography, an Individual Artist Grant from the New York State Council on the Arts' Architecture, Planning and Design Program, and a Graham Foundation for Advanced Studies in the Fine Arts grant. *Transitory Gardens, Uprooted Lives* was supported in part by a grant from National Endowment for the Arts. *The Tunnel* was supported in part by a grant from New York Foundation of the Arts.

Morton's photographs have been exhibited internationally. She is represented by Eighth Floor Gallery, New York City.

LESSONS OF THE PRAIRIE SCHOOL

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The primary educational goal of built environment education for art educators is aesthetic. We ask questions such as: What does the building tell us? How do its spaces make us feel? Why does it look like that? Is the building art? The Prairie School architects dealt successfully with an aesthetic issue which affects us all—designing the places where we live. Rarely do we see a body of work as rich and varied, yet as integrated in design and philosophy, and therefore as accessible, as that of the Prairie School. This accessibility can provide a framework to support further inquiry. The ecological and social consciousness of Prairie School architects, in their attempts to design buildings which were in harmony with nature, beautiful, and affordable, make them heroic 20th-century artists for the children of the 21st century to study.

Introduction

No single art form has as much meaning in everyday life for all of us as architecture. The commonality of the experience it offers, its accessibility, and the many lessons it has to teach, make the built environment a natural locus for art education. The study of the built environment is a study of history, sociology, economics, technology, materials, psychology, and design which makes it a fine subject for interdisciplinary studies and a subject through which we can raise important issues about the world human beings have built.

Our mass-mediated, suburban-sprawling, freeway world did not exist at the dawn of the 20th century. Perhaps it is important to have our students critically examine the world in the broad terms of the built environment. The 21st century will be built around or on top of what is here. Questions like—How does this place make you feel? Why does your city look like this? What is that building telling us? How is my neighborhood different? Do these places affect who I am?—can lead to questions such as—Is this house good design? Is that building art? Is this town a pleasing place to be? Would you want to change it, preserve it, or tear it down? What do we value? Can we create a better place? These are aesthetic issues.

With so many topics worthy of study in the realm of art education, making curricular choices is difficult; there is so much out there. Most art texts deal with built environment education by providing a broad and brief study of structural systems: Stonehenge to skyscrapers. Another approach has students deal with the general idea

of "shelter," perhaps with a multi-cultural emphasis. Architecture seems to happen in another place or time.

The Prairie School architects were predominately designers of middle class homes. They were reinventing the single family dwelling for 20th-century Americans; their ideas influenced the design of the homes in which many of us live. Domestic architecture is a logical place to learn about architecture because we all experience houses, in one form or another. An examination of The Prairie School of Architecture presents a varied but cohesive body of work that invites and focuses student inquiry. Through the study of the built environment we may, perhaps, regain a sense of place and a sense of the unity between art and life. This is a goal shared by the architects of the Prairie School. Its importance in the history of art as the first original and truly American architectural style *not* based on historical precedent is significant.

Figure 1
Neo-classical. Renaissance Palladian window in a Greek temple pediment.

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19th-Century Architecture

American homes in styles such as Neo-classical, Colonial, and Victorian all exhibited monumental mass and verticality, alluding to Classical and European sources. Their exteriors featured multiple gables and bays, turrets, and towers. The steam-powered lathe could mass produce decorative rosettes, spindles, brackets, dentils, and moldings inexpensively (see Figure 1). The standardization of a ready supply of lumber made these larger elaborate houses more available (Peterson, 1992). The interiors of these houses were divided into numerous high-ceilinged rooms such as formal parlors, dining rooms, and sitting rooms.

"Prairie" was both a reaction to work of the past and a response to the artist's perceptions of the present. The contrast of the Prairie School to prevalent 19th-century styles is a stark one, an "instructive dichotomy," which can be used to frame the question: What should a house be? Examining the aesthetics of the Prairie School provides students with a distinct and comprehensible point of view from which to analyze other art and architecture. Vincent Scully (1991) identified "instructive dichotomies" as themes of his architectural history with questions such as: Do we attempt to echo the shapes of the landscape or contrast with them? Do we dominate nature or control it and live in harmony with it?

Defining the Prairie School

Architectural historian H. Allen Brooks (1984) tells us the Modernist movement began as a series of subcultures seeking alternatives to prevailing practices in design, especially the Classical Revival styles which were again the dominant mode. The Prairie School was a regional architectural style which was part of the turn-of-the-century reform and revolt in the visual arts, including Art Nouveau, the Austrian Successionists, and the Glasgow School. The Prairie School was distinctly American for the following reasons: (1) its theoretical connection is to nature, not to idealism and classical rules; (2) the forms have a regional quality connected to vernacular architecture of the Midwest; (3) "Form follows function," the credo of Louis Sullivan, the mentor of the Prairie School, is evident in the work; (4) there is a close relationship of the building to the landscape; and (5) there is a openness and informality of the floorplans, with an emphasis on use and convenience. The qualities which, for Brooks, give Prairie School architecture its American identity, also help describe its enduring appeal and its relevance for contemporary study.

Frank Lloyd Wright

Wright was the single most important designer of the Prairie School architects. He took the theories of Sullivan and his following and gave them form. Generally considered the first "Prairie" structure, the "Ward Willetts House" of 1904 exhibited the defining stylistic characteristics (see Figure 2): A low ground-hugging horizontality created by an expansive hipped roof with broad eaves and half-walls extending out from the building mass, ribbon windows which wrap around the corners of the struc-

ture making them into abstract geometric patterns, and a massive central fireplace at the heart of the house which anchors the structure. "The destruction of the box" and creating a sense of open space while simultaneously creating a sense of shelter and appropriateness to the landscape and human scale were goals of Wright (Scully, 1960).

Another of Wright's goals was to build affordable yet aesthetically pleasing housing. The majority of Prairie School commissions were from well-educated middle class patrons, not the wealthy; upper class patrons generally desired houses which looked like the royal palaces of the past. In 1906, *The Ladies Home Journal* published Wright's plans for "A Fireproof House for $5,000." This plan became the most influential design of his early career. Based on the ubiquitous turn-of the-century vernacular form known as "The American Foursquare" (see Figure 3), Wright transformed this inexpensive, energy-efficient, standardized and austere house by applying his ideas to it (Wilson, G. & Robinson, S. K., 1977). On the exterior, he lowered the profile and emphasized the horizontal, organized casement windows into horizontal bands and geometric shapes, used stucco and stained wood instead of painted clapboard, and cleverly moved the entrance to the side of the structure—vastly improving the traffic pattern and creating more space on the interior as well as simplifying the facade. Interior space was further enhanced by eliminating walls and doors, opening the living room and dining rooms into one another, using clerestory windows and French doors, and integrating trimwork, colors and materials throughout. The resulting expansiveness made these modest homes, at least psychologically, more house for the money.

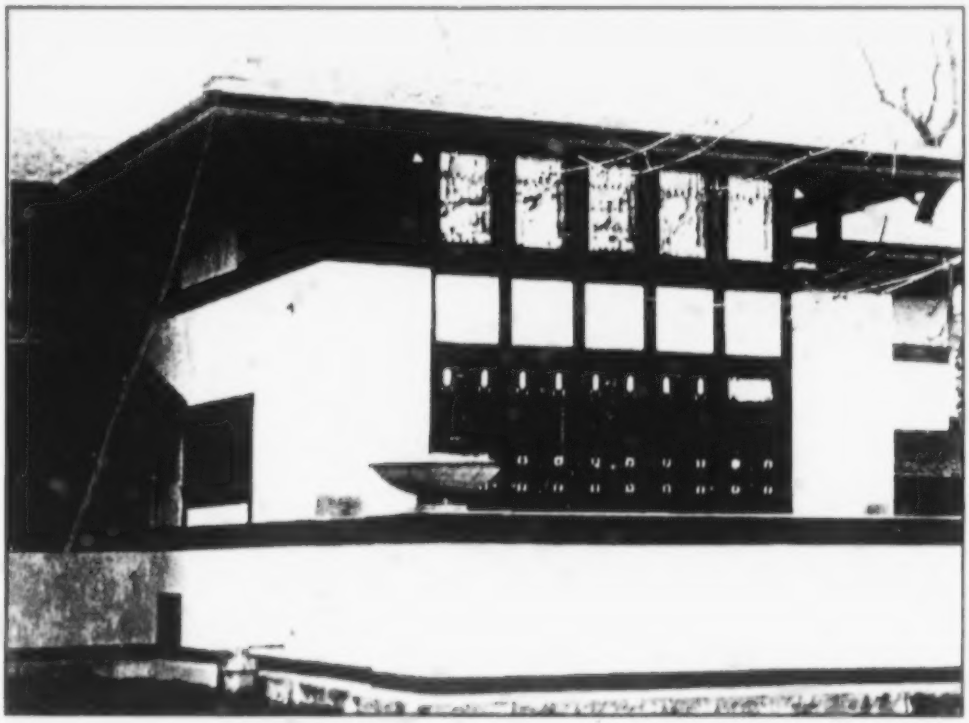

Figure 2—"The Ward Willetts House," in Highland Park, Illinois is generally considered Wright's first true Prairie design. Photo by Carl Thurman of the University of Iowa.

Perhaps many important and successful works of art are a creative reworking of what is already around us. The vernacular Foursquare and Wright's Stockman House provide for us another "instructive dichotomy": Where do artists get their ideas? Do these houses share some qualities? Why are there more Foursquares than Prairie designs? Is the Foursquare a kind of art, too? Does an architect have to design a house for it to be art?

All too often Wright's work, like that of other artists, is not viewed in its context. Architecture, by its nature, is a collaborative art form, a result of a place and time. The people Wright inspired also inspired him. Wright's contemporaries went on to create original work of fine quality. In fact, The Prairie School reached its zenith after Wright had moved on to other projects. The design teams of Griffin and Mahoney, and Elmslie and Purcell deserve to be on any "short list" of Prairie architects.

Walter Burley Griffin and Marion Mahoney

Walter Burley Griffin, who referred to himself as a landscape architect, created highly original forms. Viewing the site and the relationship of building to site to be as important as the building itself, Griffin took his Prairie ideals beyond floorplans and facades to concern himself with development, town planning, and landscape design. Marion Mahoney, the first woman to earn a B.S. in Architecture from M.I.T., met Griffin in Wright's studio where she designed furniture and details for interiors. Griffin attempted to find an ecological "balance with nature" for his buildings.

Figure 3—The American Foursquare. The vernacular form inspires the architect.

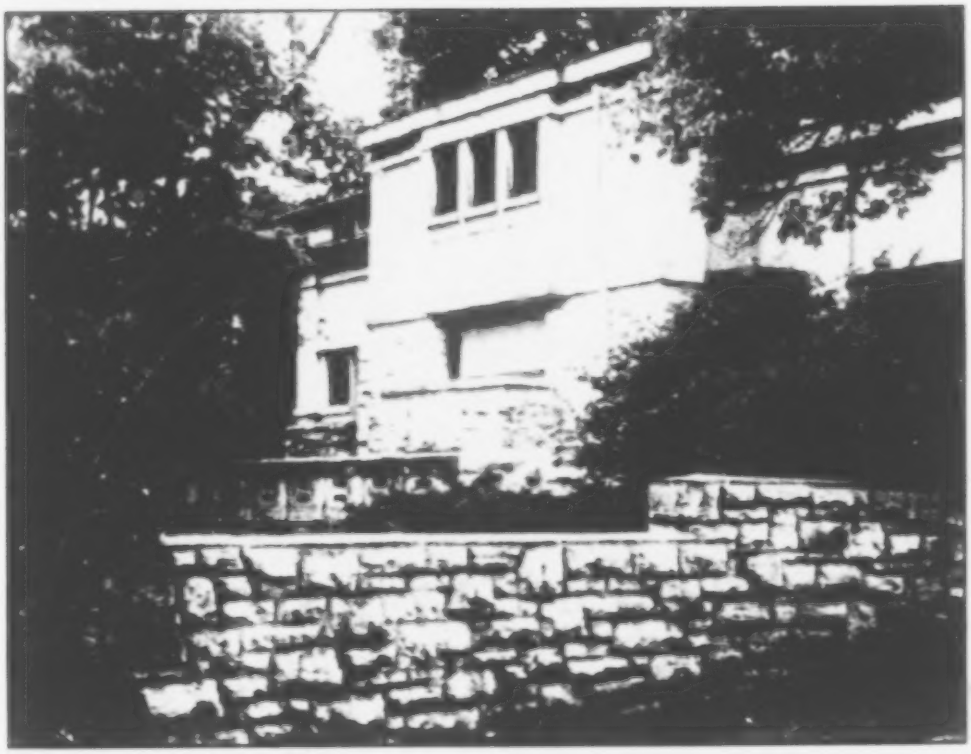

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Figure 4
"The Blythe House" by Griffin in Mason City, Iowa, used reinforced concrete both structurally and decoratively.

Initially influenced by Sullivan and Wright, Griffin and Mahoney went on to develop a personal style that emphasized visual stability. Griffin's landscaping and Mahoney's decorative detailing also added greatly to the distinctiveness of their style. He used cast concrete and looked to Native American sources (Johnson, 1977). His houses stressed the horizontal low profile seen in most of the Prairie School, while Griffin experimented in his interiors by articulating spaces vertically, "half-stepping" living areas, thus pioneering the idea of the "split-level" home (see Figure 4).

In neighborhood planning and in the domestic designs, Griffin stressed freedom and informality by maximizing views, keeping structural profiles low, and exhibiting great variety in the plans. His neighborhoods feature communal space surrounded by houses with shared driveways, service areas, and connecting walls, creating expansive green spaces.

The *Rock Crest / Rock Glen* development in Mason City, Iowa, is where Griffin and Mahoney put it all together: architecture, landscape architecture, and community design. Noteworthy for the quality and variety of its designs, it is the largest Prairie School development in America. Stone was used to in the lower levels of the houses to anchor them to the landscape and low stone walls also span the street sides of the properties throughout the development, thus blurring distinctions between lots and

visually tying them together. Stucco, wood and reinforced concrete is used in innovative ways.

Elmslie and Purcell

A team process approach to design was a defining philosophy of George Grant Elmslie and William Grey Purcell. Where Wright was known for custom building for clients according to his perceived needs for them, Elmslie and Purcell designed with their clients, the draftsman and support staff in their office and project contractors. Based in Minneapolis, Elmslie and Purcell designed homes of varying sizes and for many budgets. Beautiful decorative organic abstractions in terra cotta, wood, and metal found their way into homes where budgets allowed. They were innovators in interior space and in adapting floorplans to the site (Hammons, 1994).

The Edna Purcell House of 1913 is considered their masterpiece in residential design. Purposely choosing a long narrow lot and keeping the square footage in middle class perimeters, they built a home for the architect's family that would showcase their talents and exhibit what could be done on a basic lot with an average-sized house (see Figure 5). By setting the house back on the lot an extra 30 feet, they created an expansive front yard and a sense of privacy and visual space inside the house; side windows look out over back yards, not into neighbors windows, and more light enters the interior.

The Prairie Influence

The events of World War I and a post-war trend towards conservatism sapped the energy of the Prairie School Architects as it did the European Modernists in Paris, Vienna, and Glasgow. Many architects who worked in the Prairie mode changed with the times. However, Alan Gowans, in his wonderful book, *The Comfortable House: North American Suburban Architecture 1890-1930,* says, "not the least of the surprises in studying the Comfortable House is how many specimens of Prairie there are on a popular level. In any town you care to examine, you can find the low spreading eaves, low walls functioning as property barriers, windows arranged in strips of two or more, and semi-geometric ornament that mark prairie... and they came out of mail-order building catalogs or were the work of local contractors" (Gowans, 1986, p. 203).

The Prairie School became history, but its influence, especially its geometry, horizontal emphasis, and the open simplicity of its floorplans, can be seen in most modern types from the streamlined looks of the '30s to the common "Ranch" which is still being built. Wright's style evolved over the years, although aesthetically he remained steadfast in his concerns for a truly American modern architecture.

Today, some developers are building large, multiple-gabled structures showing little relationship to their sites or their own interiors. Such late 20th-century houses have similarities to the overly-decorated tall boxes of the Victorian age. Other planners and architects are looking to the past to create neighborhoods with a with a sense of community and to use land intelligently. Architects are experimenting with

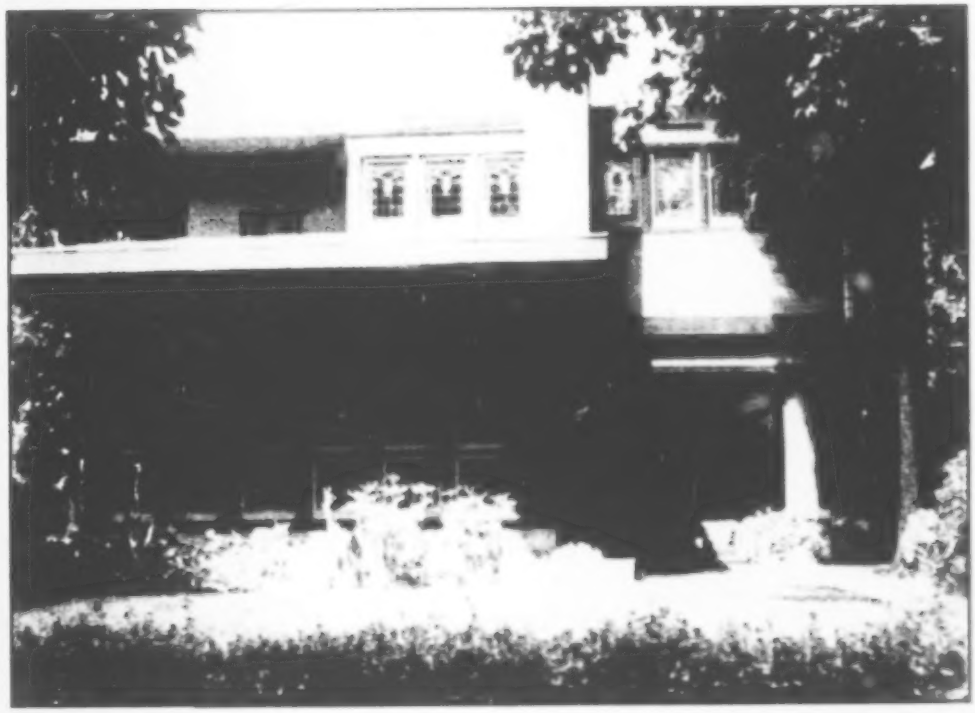

Figure 5 (above)—"The Edna Purcell House" designed by Elmslie and Purcell to showcase innovation on a standard-sized lot with a middle class budget. Figure 6 (below)—Middleton Hills in Madison, Wisconsin, built in 1996, looks like a new Purcell and Elmslie design.

approaches to home building appropriate to a renewed appreciation for the natural world and its limited resources.

In Madison, Wisconsin, "Middleton Hills, a Prairie Community" is being developed using aesthetics of the Prairie School, including urban planning ideas reminiscent of Walter Burley Griffin (see Figure 7). Smaller lots leave more room for large communal green spaces, narrow streets, sidewalks, and front porches promote "neighborliness" and mixed development zoning allows businesses and stores to be built within walking distance of the homes. The design firm DPZ, collaborators on the "Middleton Hills" project, has designed more than 90 new or rehabilitated communities over the last two decades.

Conclusion

The Prairie School Architects are an appropriate theme for teaching meaningful lessons in architecture and aesthetics because they dealt successfully with the design issue which affects us all—the places where we live. Rarely do we see a body of work as rich and varied, yet as integrated in design and philosophy, and therefore as accessible, as that of the Prairie School . The ecological and social consciousness of Prairie School architects, in their attempts to design buildings which were in harmony with nature, beautiful, and affordable, make them heroic 20th-century artists for the children of the 21st century to study.

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GENDERED SPACES: ARCHITECTURE, FEMINISM, AND ART EDUCATION

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In this chapter, we argue that it is essential to effect paradigmatic changes that alter the conditions in which gender divisions are created and reproduced. Inherent in a feminist analysis of the teaching of architecture is the call for social change. Teaching about architecture in a way that does not reinforce gender dichotomies is one strategy to begin to effect these changes. Exploring the discipline of architecture from a feminist perspective will encourage changes in our understandings of the profession of architecture, the role of the architect, the manner in which architecture and architectural history are typically taught, and the ways in which architecture includes or excludes certain groups of people (and those people whose interests are served by this exclusion). This shift in perspective will illuminate ways in which gender biases in architecture can become a part of critical inquiry in the art classroom.

Architecture: A Gendered Term

> architecture: 1) the profession of designing buildings, open areas, communities, etc., usually with some regard to aesthetic effect. 2) the character and style of building: *the architecture of Paris.* 3) the result or product of architectural work, as a building. 4) buildings collectively. (*The Random House College Dictionary,* rev. ed. 1982, s.v. "architecture.")

Before beginning to revise our conception of architecture, let us clarify what we mean when we speak of "architecture." Architecture, in its broadest sense, can be considered the structure that we give to our built environments. However, while potentially useful, this loose definition does not indicate the social, political or economic values that are built and re-built into the literal and theoretical construction of this term. Architecture is not an inherently neutral term. For instance, this simple dictionary definition reveals two biases about the way we conceptualize "architecture": 1)

that it is an objectifiable entity, and 2) that there is a distinct difference between the term's relationship to aesthetics and the term's relationship to a physical activity.

In this definition, it is the physical structures of the buildings (or objects) themselves that constitute "architecture." By objectifying the physical structures of architecture in this way, the historical, social, political and experiential contexts of architecture remain invisible and unaddressed. As a result, the gender biases in architecture also become neutralized. Gender, in these objectified conditions, is assumed to be pre-architectural. This is to say, gender is thought to be an established circumstance prior to the architectural concept. Architectural theorist Mark Wigley (1992) recognizes that this is due largely to the perpetuation of architecture's canonical texts whose "laws" inscribe gender specificity on space and form in architecture, while giving the illusion of being pre-existing. For example, we can analyze the ways in which buildings have "male" and "female" spaces based upon the primary use of a space and the gender typically assigned to such use. However, if we assume that these spaces were built this way in accordance to some pre-architectural law, that is, that the architect, in producing the building's design, was merely following pre-existing gender rules, then we do not acknowledge or critique the role that architectural spaces play in creating gender. In such cases, gender in architectural space is protected from analysis by the very discourse that constructs it. As Wigley (1992) states, "the building's detachment from sexual politics is produced by that very politics" (p. 133).

The second bias revealed in the dictionary definition is the clear distinction that is made between architecture as an art form and architecture as an everyday activity. As such, buildings based upon professional designs that contain sanctioned aesthetic decisions are clearly different from just buildings. As architectural critic Diane Ghirardo (1991) points out in her introduction to *Out of Site: A Social Criticism of Architecture*, there is a great deal of difference between *Architecture* (with a capital "A") and *architecture* (with a small "a"). Big "A" architecture is considered Art (also with a capital "A") whose existence and health rely upon a profession that cannot afford to have itself associated with the blue collar activity of building. Ghirardo maintains that "there is a tacit and often explicit professional agreement that non-architect designed buildings cannot be considered Architecture" (p. 11). That Big "A" architecture is kept separate from little "a" architecture seems a matter of professional survival for architects.

Within this implicit distinction between *Architecture* and *architecture*, we find a system of dichotomies that are embedded within architectural practice, theory, and discourse. These dichotomies, which will be discussed later, are generated by patriarchal systems of binary thought and organization which insist upon the subordination of one term (feminine) to the other (masculine). They are also a part of the architectural paradigm that feminist inquiry seeks to change. In the art education classroom, one place that these dichotomies appear is in the tendency to teach about canonical works of architecture (that are almost exclusively male produced), without ever addressing other forms of building outside the canon. We readily teach about Gothic cathedrals but often ignore the mall down the street even though the latter might have much more relevance and impact on our students' lives. Furthermore, there is rarely any discussion of the underlying ideologies that are implicated in this form of study.

Feminist Perspectives in Architecture

In the late 1940s, Simone de Beauvoir wrote "we are told that femininity is in danger; we are exhorted to be women, remain women, become women" (1989, p. xxv). de Beauvoir wrote this in response to the question "What is a woman?", a question that has structured much argument over the centuries. What is striking about de Beauvoir's analysis of this situation is her recognition that women, and the related and defining concepts of femininity, are socially constructed. She establishes that there are two classes of people, men and women, and that these two classes are not symmetrical and equal. Further, de Beauvoir establishes that man has come to represent both "male" and "humanity"—the neutral—in our society. She writes:

> Thus humanity is male and man defines woman not in herself but relative to him; she is not regarded as an autonomous being…She is defined and differentiated with reference to man and not he with reference to her; she is the incidental, the inessential as opposed to the essential. He is the Subject, he is the Absolute—she is the Other. (p. xxvii)

This analysis of the construction of woman as other, and the multiple ramifications of this position, lie at the heart of feminist theory. Within a patriarchal society that can only conceive of woman as man's other, she can have no access to subjectivity, a position from which she would be able to speak as subject rather than as other. The very nature of this definition points to the power imbalance between men and women, and to a power relation that serves to keep women from positions where they can speak as subjects. Woman remains fixed within a duality, and her position as other becomes essential for the maintenance of the patriarchy. Writers such as Helene Cixous (1986) have pointed out that the duality of gender assures a construction of hierarchy between the terms of the duality. This division into binary oppositions has the effect of enforcing the position of woman as other, the lower term within the hierarchy of gender. Cixous extends these dichotomies to all facets of patriarchal binary ways of thinking and creating. Within such systems, divisions exist between male/female, public/private, mind/body, culture/nature, outside/inside. Within each pair of terms, the subordinate term depends upon the dominant term for definition and, thus, is negatively defined in terms of what it is not.

In the case of architecture, this same structure of binary thinking creates further specific dichotomies. One of the most profound of these is the division between big "A" and little "a" architecture; however, these divisions permeate all aspects of architectural thought. We find them announced throughout architectural discourse, from the distinctions drawn between theory/practice, design/construction, to the differences between interior/exterior, and public/private. As long as these dichotomies exist within the profession of architecture, conditions for the creation of gender biases are ripe.

Revealing Gendered Spaces

Nineteenth-century feminists devoted a great deal of attention to architecture and the gendered divisions of space. As Delores Hayden (1981) writes, "between the end of the Civil War and the beginning of the Great Depression, three generations of material feminists raised fundamental questions about what was called 'women's sphere' and 'women's work.' They challenged two characteristics of industrial capitalism: the physical separation of household space from public space, and the economic separation of the domestic economy from the political economy" (p. 3). These feminists, both male and female, "became convinced that a collectively revised architecture would be crucial to the social empowerment of women" and further "that the exploitation of women's domestic labor was central to the perpetuation of sexual inequality. They consistently proposed material solutions involving both economic and spatial change." (Allen, 1988, p. 20). In their call for such things as collective child care and collective housework, these material feminists recognized the need to break down the isolation incurred through the gendered separation of public and private spheres. They sought to bring what was traditionally considered female activity into what was traditionally considered the male public sphere.

The problem of architecture and its relationship to gender is not a new one. In the most optimistic accounts, these early feminists predicted that by the end of the 20th century these problems would likely be solved. Yet, in the writings of contemporary women architects, we find many of the same issues that earlier feminists were addressing. While the efforts of material feminists are important, we must also bear in mind that they are one-directional. That is, while their analyses seek to demonstrate how design can be gender biased, it is possible that they simultaneously are reproducing the very gender biases they seek to undermine. Architectural spaces are also forms of representation. As Mark Wigley (1992) points out, "place is not simply a mechanism for controlling sexuality. Rather it is the control of sexuality by systems of representation that produces place" (p. 350). Wigley makes it clear that we must examine how architecture produces gender and how gender produces architecture. Without this type of two-directional analysis, we grant gender the status of a pre-architectural given and insure its absence from analytical discourse about architecture.

Feminist Pedagogy, Architecture and Art Education

Feminist pedagogy seeks to intercede in the formation of gender identities, scrutinizing the means through which these identities, and all their ramifications, are ascribed and established. As an extension of this practice, feminist critical theorists ask us to move away from the acceptance and replication of systems of meaning and knowledge and to analyze instead the structures and foundations of our thinking as these reflect and perpetuate gender identities. This type of systematic analysis is of crucial importance because it provides access to an understanding of patriarchy that moves beyond instances of individual oppression and silencing and facilitates a comprehension of ways in which patriarchy affects all aspects of meaning.

As art educator Hinda Avery (1989) points out, the body of literature in art education on the built environment written in the past two decades or so has dealt primarily with aesthetic and design aspects of the urban environment, with only a few authors exploring social and political issues. While acknowledging this body of work in art education as important to the field, we suggest approaches to teaching architecture as a dynamic and relational concept rather than an objectifiable body of information. These strategies are intended to work towards negotiating the dichotomies that are instrumental in the creation of gender divisions in architecture.

Feminist scholars in the visual arts have used feminist theory as a basis for work as diverse as recovering traditional "women's arts" such as quilting and needle work and rediscovering the lives of women artists who have been excluded from standard art history. In built environment education, such a strategy involves recovering the lives and works of women architects such as Eileen Gray and Julia Morgan as a basis from which to teach. We believe that this work is of equal importance to feminist theorizing, for this scholarship uncovers and recovers the lives and experiences of women and thereby provides a basis for further scholarship. This is what Jane Flax (1990) describes as the compensatory aspect of feminist scholarship: the recovery of women's lives and experiences into our culture's myths and stories. The inclusion of women into the stories that we tell about ourselves is of vital importance to feminism, feminist theory and society as a whole. This revision of the canon is an obvious first step but does little to change our fundamental conception of the nature of the canon. More important, we must examine how the canon is formed in the first place. We need to ask questions such as: what works merit inclusion in the canon? Upon what criteria are these works judged? Who determines these criteria? In asking these questions, we must explore how gender factors into these considerations.

Architectural history is generally taught using one of two models (Kampen & Grossman, 1983, p. 10). The first, based upon chronology, asks students to learn the progression of "great" architectural works. The second, based upon stylistic innovation, asks students to learn the "great" (male) architects. We are not suggesting that this information is unimportant or that it should be removed from the curriculum. However, neither of these models address the question of how architectural history is created. These paradigms of these traditional forms of study remain invisible. In a revealing article titled "Room At The Top: Sexism and the Star System in Architecture" (1989) Denise Scott Brown discusses the appropriation of her work by architectural critics and historians. In the writers' want for a (male) star, much of the work produced by Scott Brown was attributed to her husband Robert Venturi. This continued despite written protests by both Scott Brown and Venturi. As art educators, we must question the very system that perpetuates a star architect system in which great genius is the sole creator (removed from sociopolitical context) of forms that have transcendent qualities. This is a system that has traditionally excluded women and women's issues.

As Mark Wigley (1992) points out, "the active production of gender distinctions can be found at every level of architectural discourse: in its rituals of legitimation, hiring practices, classification systems, lecture techniques, publicity images, canon formation, division of labor, bibliographies, design conventions, legal codes, salary struc-

tures, publishing practices, language, professional ethics, editing protocols, project credits, etc." (p. 329). Inherent in the understanding of gender as a social construction lies the implication that epistemologies and disciplines are also socially constructed. This viewpoint does not present gender as a pre-architectural given but explores the means through which gender constructs our understanding of architecture and architecture constructs our understandings of gender. This social constructionist view demands a revision of the seemingly value-free nature of inquiry and the ideal of the objective stance of the researcher or teacher. Placing ourselves in our inquiries, feminists have sought strategies of questioning that incorporate a standpoint which intervenes in an androcentric formation of knowledge.

We need to move away from typical formal dialogue that establishes dualism and dichotomies within architecture. For example, the distinctions drawn between big "A" and little "a" architecture, public and private domains, interiors and exteriors, form and decoration, etc. need to be re-examined. These dualisms necessarily set up conditions in which one term becomes subordinate to the other. Inscribed in the language of institutions (architecture, art, academia, etc.) representation of these dualisms as natural oppositions makes possible the gendering of space. As Wigley points out, "the feminine term in each case is produced as such in the very moment of its subordination by the other term which both depends upon it and a veiling of that dependence" (p. 372). Tied to the dichotomies of the profession, big "A" Architecture is unable to make anything more than formal gestures towards social change, and little "a" architecture is devoid of the status required to make social change. The social change that we see as necessary includes the breaking down of gendered suppositions assumed by the paradigms of the profession to be *a priori*.

Feminist inquiry differs from and adds dimension to other forms of theorizing by placing women and their lives and experiences at the center of inquiry. As sociologists Stacey and Thorne (1985) describe it, "this strategy makes women's experiences visible, reveals the sexist biases and tacitly male assumptions of traditional knowledge, and...opens the way to gender understanding" (p. 303). Feminist theory and practice becomes a form of intervention. In terms of architecture, theorist Margaret Crawford (1991) points out that alternative models of architectural practice should be based upon specific material conditions and situations rather than generalized principles embracing solutions that assume gender as a pre-architectural given. For example, what is the importance of the existence of little "a" architecture if not to preserve the status of Big "A" architecture? As Crawford (1991) indicates, "aesthetics alone cannot solve the difficult problems of current housing and urban conditions" (p. 43). We need to explore the ways through which aesthetics provides an ideological mask for the discipline of architecture. How does this ideology hide questions surrounding gender? How does architectural theory and practice help maintain this ideology? We need to explore ideas such as interior design being "women's work." We need to examine the concepts of gender hidden in spaces of repressed sexuality such as the bathroom and bedroom.

This is just a beginning to the sorts of questions we need to start discussing with our students. In addition, a feminist approach necessitates a change in teaching meth-

ods. To close, we would like to draw upon Leslie Kanes Weisman (1989) who wrote about feminist education:

> The primary value of such an education [feminist] is its ability to create social change through personal transformation of those it educates…Feminist education is based upon the morality of political responsibility, accountability, empathy, and rigorous self-examination, and begins with defining the self and the community to which the self belongs. Feminist education means searching to fully understand the social forces that have shaped our individuality, then locating that self in the world, understanding the true nature of the "we" that each self feels herself a part of. (p. 129)

Of course this applies to much more than the teaching of architecture. A feminist education demands a revision of all of our teaching materials and strategies. We have suggested one approach to how this might revise the teaching of architecture to students of art education.

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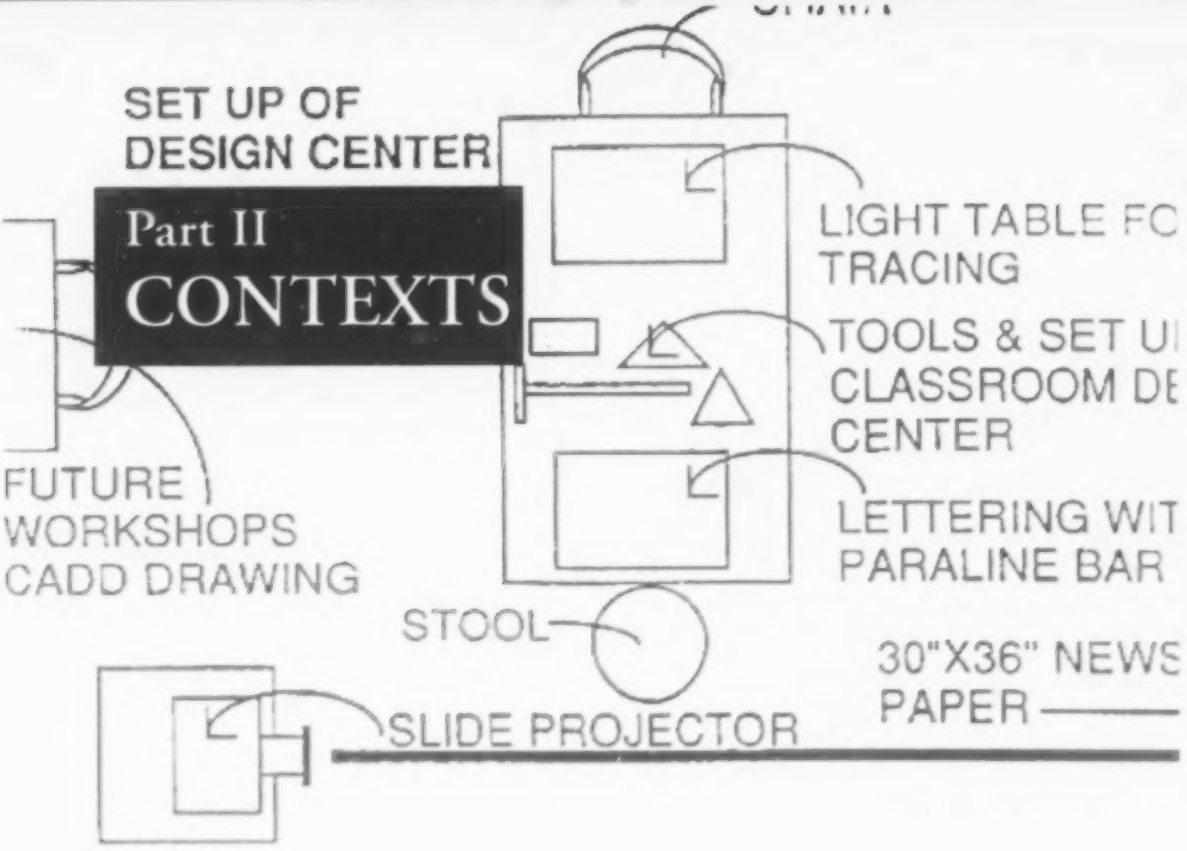
SET UP OF
DESIGN CENTER

Part II
CONTEXTS



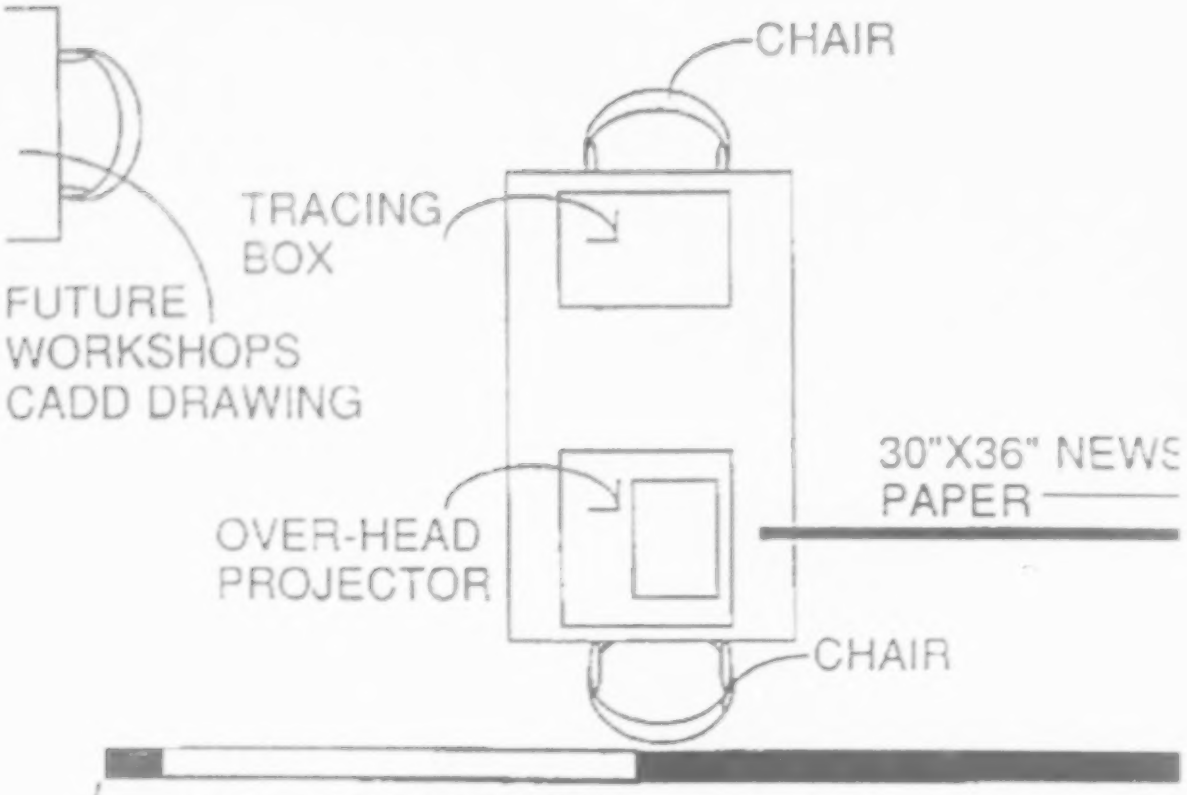


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Figure 4

ARCHITECTURE AS PEDAGOGY

David W. Orr
Oberlin College

It is paradoxical that buildings on college and university campuses, places of intellect, characteristically show so little thought, imagination, sense of place, ecological awareness, and relation to any larger pedagogical intent. The typical academic building seems to have the architectural elegance and performance standards common to shopping malls, motels, and drive-through funeral parlors: places where, one might infer, considerations of "throughput" are uppermost in the minds of designers. How has this come to be? Some believe it is the result of a conspiracy of sorts between a wealthy donor wishing to make an end run around mortality by having his or her name on a building; a college president wishing to enhance a reputation by designing showy buildings that do not work very well; and a financial officer whose job it is to economize on beauty, humanity, and common sense in the name of fiscal integrity. Personally, I do not believe that the design of academic buildings is the result of a conspiracy at all. Most academic administrators and trustees are fully capable of doing all of this on their own in broad daylight. They have not conspired, because they did not need to—faculty and students have been effectively excluded from the process whereby ambition tempered by dullness and tortured by utility is rendered into architectural form.

The problem is not just that many academic buildings are unsightly, do not work very well, or do not fit their place or region. The deeper problem is that academic buildings are not neutral, aseptic factors in the learning process. We have assumed, wrongly I think, that learning takes place in buildings, but that none occurs as a result of how they are designed or by whom, how they are constructed and form what materials, how they fit their location, and how—and how well—they operate. My point is that academic architecture is a kind of crystallized pedagogy and that buildings have their own hidden curriculum that teaches as effectively as any course taught in them. What lessons are taught by the way we design, build, and operate academic buildings?

The first lesson is that architecture is the prerogative of power and not that of those who teach or learn. Implicit in this view is the assumption that architecture does not influence the flow of ideas, the quality of learning, and the human relationships in which learning is embedded. Therefore, faculty and students are rarely consulted on whether or what to build or where. From this, they learn that power can impose what it wishes on the academic landscape without having to explain much.

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The second lesson is that architecture and building design are merely technical and are thus best left to people with technical competence. It follows that ethical, ecological, or aesthetic aspects of building do not matter nearly as much as technique and technology. In deference to expertise, then, we learn passivity toward the "built environment." This may explain our subsequent failure to protest the spread of ugliness and banality across the landscape as well as our apparent obviousness to how these cheapen our lives and diminish our prospects.

From the design and materials used in construction, a third lesson is learned: The environmental and energy costs of building do not matter much. Academic buildings are seldom designed to maximize solar gain or energy efficiency, to minimize unpriced environmental costs of materials, or to utilize local materials. Thus, we learn the carelessness that accompanies waste and inefficiency, as well as callousness to the degradation of other places from which materials and energy originate.

Fourth, a "successful" building is one that quietly serves the educational process but requires no mindfulness of those who use it. From this we learn passivity and disengagement from our surroundings and the irresponsibility invited by never having to know how things work, or why, or what alternatives there might have been. The same building in which sophisticated theories are propounded unobtrusively teaches its occupants that it is OK to be oblivious to the most basic aspects of life support.

Fifth, the process teaches us about the limits of imagination. It is assumed, without anyone ever saying as much, that intellect can be nurtured in sterile places largely devoid of imagination. Therefore, creativity in academic architecture is mostly confined to facades replete with lots of glassy flourishes of form disengaged from any purpose beyond that of impressing the easily impressible. The use of imagination mostly stops short of the places where learning is supposed to happen, the design of which is still the cubical classroom or the lecture hall (a cavernous space with audiovisual equipment), both of which reached near state of the art sometime before the "Dark Ages." Such spaces do little to lift the spirits, stir the imagination, fuel the intellect, or remind us that we are citizens of ecological communities.

We have not thought of academic buildings as pedagogical, but they are. We have not exercised much imagination about the design of academic buildings, and it shows in a manifest decline in our capacity to envision alternatives to the urban and suburban excrescence oozing all around us. We have assumed that people who know little about learning and pedagogy were competent to design places where learning is supposed to occur. They are not, not alone anyway. What alternatives do we have?

Let us begin by asking what might be learned from the design, construction, and operation of the places where formal education takes place. First, the process of design and construction is an opportunity for an community to deliberate over the ideas and ideals it wishes to express and how these are rendered into architectural form. What do we want our buildings to say about us? What will they say about our ecological prospects? To what large issues and causes o they direct our attention? What problems do they resolve? What kind of human relationships do they encourage? These are not technical details but first and foremost issues of common concern that should be decided by the entire campus community. When they are addressed as such, the design of buildings fosters civic competence and extends the idea of citizenship.

Second, the architectural process is an opportunity to learn somethings about the relationship between ecology and economics. For example, how much energy will a building consume over its lifetime? How much of what kinds of materials will be required for its upkeep? What unpriced costs do construction materials impose on the environment? Are they toxic to manufacture, install, or, later, to dispose? How are these costs paid? What is the total energy embodied in materials used in the structure? Is it possible to design buildings that repay those costs by being net energy exporters? If not, are there other ways to balance ecological accounts? Can buildings and the surrounding landscape be designed to generate a positive cash flow?

These questions cannot be answered without engaging issues of ethics. How are building materials extracted, processed, manufactured, and transported? What ecological and human costs do various materials impose where and on whom? What in our ethical theories justifies the use of materials that degrade ecosystems, jeopardize other species, or risk human lives and health? Where those costs are deemed unavoidable to accomplish a larger good, how can we balance ethical accounts?

Fourth, within the design, construction, and operation of buildings is a curriculum in applied ecology. Buildings can be designed to recycle organic wastes through miniature ecosystems that can be studied and maintained by the users. Buildings can be designed to heat and cool themselves using solar energy and natural air flows. They can be designed to inform occupants of energy and resource use. They can be landscaped to provide shade, break winter winds, propagate rare plants, provide habitat for animals, and restore bits of vanished ecosystems. Buildings and landscapes, in other words, can extend our ecological imagination.

Fifth, they can also extend our ecological competence. The design and operation of buildings is an opportunity to teach students the basics of architecture, landscape architecture, ecological engineering for cleaning wastewater, aquaculture, gardening, and solar engineering. Buildings that invite participation can help students acquire knowledge, discipline, and useful skills that cannot be acquired other than by doing.

Finally, good design can extend our imagination about the psychology of learning. The typical classroom empties quickly when not required to be used. Why? The answer is unavoidable: It is most often an uninteresting and unpleasant place, designed to be functional and nothing more. And the same features that make it unpleasant make it an inadequate place in which to learn. What makes a place good educational environment? How might the typical classroom be altered to encourage ecological awareness, creativity, responsiveness, and civility? How might materials, light, sounds, water, spatial configuration, openness, scenery, colors, textures, plants, and animals be combined to enhance the range and depth of learning? My hunch is that good learning places are places that feel good to us: human-scaled places that combine nature, interesting architecture, materials, natural lighting, and "white sounds" (e.g., running water) in interesting ways that resonate with our innate affinity for life.

My point is that the design, the construction, and the operation of academic buildings can be a liberal education in a microcosm that includes virtually every discipline in the catalog. The act of building is an opportunity to stretch the educational experience across disciplinary boundaries and across those divining the realm of thought

from that of application. It is an opportunity to work collectively on projects with practical import and to teach the art of "good work." It is also an opportunity to lower lifecycle costs of buildings and to reduce a large amount of unnecessary damage to the natural world incurred by careless design.

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David W. Orr is chair of the environmental studies program at Oberlin College, and education editor of the journal *Conservation Biology*. His previous books include *Ecological Literacy* and *The Campus and Environmental Responsibility*.

EDUCATING FOR SUSTAINABILITY: LETTERS FROM AN ALUM

Charles W. Rusch
Professor of Architecture Emeritus

This chapter begins by describing an environmental controversy, which has developed at one of the nation's finest prep schools, about whether and where to place some new playing fields and faculty housing. Through a series of letters, it examines that controversy to reveal its roots in the environmental crisis and values of our culture. The controversy is tied to the broader issue of educating for an ecologically sustainable culture and concludes that simple changes in curriculum will not be sufficient to meet the challenge. Rather, a fundamental shift in the values of the entire school community will be required—a shift that will be reflected not only in the curriculum, but in the school's stated policies, its architecture and building program, its land-use plan, and its management.

Prologue

In early September 1995, I received a form letter from two individuals representing a small group of alumni, students, and faculty of the independent prep school I attended in New England. The group called itself "Common Sense at Middlesex School." Middlesex School is located on a large piece of land 3 miles north of Concord, Massachusetts, in the county of Middlesex. It has over 300 students of which about 25% are day students. (Middlesex opened in 1901 as a college preparatory boarding school for boys, but it is now coeducational, with its graduates applying to colleges all over the country.)

The original campus was designed by the firm of Frederick Law Olmsted, the designer of New York's Central Park (among many other outstanding designs), who is often spoken of as the father of American landscape architecture. It is a lovely campus, with most of the buildings arranged around a large circle lined with oak trees. Administrative offices and the main classrooms are at 12 o'clock (east), the chapel at 6 o'clock (west), the dining hall at 9 o'clock (north), and a long entrance drive comes into the circle at 3 o'clock (south). Four dormitories fill in the circle, and others hover close by. There is a half-mile long lake, Bateman's Pond, nearby to the east with a small boat house, and across the lake a large woods called Estabrook Woods. To the north of the dining hall are the athletic buildings, and to the west, between the circle of buildings and the road, lie the playing fields.

Middlesex bills itself as "the best of the small independent preparatory schools," an approbation with which I have no quarrel. It is a very fine school indeed, with excellent academics, an outstanding faculty, an enthusiastic and energetic student body, a fine athletic program, and a good physical plant on a beautiful campus. Accessibility is improved each year with a growing fund of financial aid and an aggressive program to increase diversity and gender balance. Alumni and parental financial support, on a percentage basis, is consistently among the highest in the nation. As a biased alum myself, I would place Middlesex in the ranks of the best schooling the country has to offer.

Environmental Concerns Spark Campus Controversy

The alumni letter I received detailed a controversy taking place over some planned additions to the campus. The proportion of girls in the school is currently moving from about 40% towards 50%, and the school has decided that it needs to build more playing fields because of this new mix. In addition, many of the faculty members live off campus, and Middlesex, as a residential school, wants to build more housing on campus to accommodate faculty members. The controversy is where to put these additions.

The school's position is that the only place for the playing fields, as well as the housing, is in an area in Estabrook Woods across some wetlands north of and near the pond. The school had recently promised to consign a large portion of its part of the Woods to a pool of privately owned contiguous properties to be held under a conservation restriction, protecting them in perpetuity, but the remaining portion of the Woods, closest to the school, had been retained against the possibility that it would be needed in the future. This proposed expansion is the first proposal to use some of that woodland for buildings and grounds. [It should be noted here that the foregoing represents the original position of the school's board of trustees. As the controversy has unfolded, the Board has moved away from this position of urgency to one of establishing access to the Woods for the purpose of expansion at some time in the future.]

The ad hoc alumni group was shocked and offended that the school would want to put a bridge over the wetlands and put roads, parking, playing fields, and houses in the Woods. Their position was largely environmental, but partly sentimental and educational, based on their memories of the Woods as an important part of their Middlesex experience. The purpose of their letter was to inform the alumni of these plans and to enlist support for the group's position. All alumni were invited to comment, and I did, along with about 400 others, mostly in protest.

Shortly thereafter, the Board of Trustees sent out a response to the alumni, dated September 28, 1995, which included a two-page summary of the history of the controversy and of the Board's position. After reviewing the Board's decision regarding the need for expanded facilities, the statement, quoted as follows, turns to the issue of Estabrook Woods (the original sentence order has been changed slightly for clarity and brevity):

... During this period (1991-1994, while assessing expansion needs), Middlesex initiated a number of meetings with a small group which was discussing the area of woodland known as Estabrook Woods, which is owned by many private landowners, by Middlesex (about 200 acres, which includes Bateman's Pond and the land to its east), and by Harvard University (670 acres... used as a zoological station)... Local conservation groups have been eager to preserve these Woods through a permanent Conservation Restriction (CR). Needless to say, Middlesex shares that desire. Nevertheless, when it became known that Middlesex wanted to use some of its land (approx. 12 acres) to build athletic fields, housing, and tennis courts, some members of the community felt that the School was undermining any possibility of securing CRs to accomplish the permanent preservation of the Estabrook Woods. This criticism has continued in spite of the existence of photographs dating from the 1930s which show that much of the woodlands in question were farmlands...

In the fall of 1993, Middlesex submitted its long-range land use plan to Concord's Planning Board (which has purview over changes in land use) for its review. The permitting process invites public review, and when the School's plans became public, a group of people voiced some considerable, passionate objections because of the wetlands crossing and the use of a portion of the School's land which has been considered part of the Estabrook Woods. The local press picked up the story, and since then, the School's opponents portrayed Middlesex as a local environmental villain...

In the summer of 1994...Harvard agreed to protect its part of the Woods if...an additional 400 acres in the vicinity could be secured... As an abutter, Middlesex signed a CR on 55 acres of its land (the southern and eastern portion, not the northern portion in question here)...

Since Concord's Planning Board unanimously approved the School's plans on May 1, 1995, Middlesex has been meeting before the Natural Resources Commission (which must review plans with potential wetlands, wildlife, or other natural resource impacts)...

The Middlesex Board of Trustees...is absolutely committed to furthering the School's legal right of access to its own land, while still responding conscientiously to the potential ecological and archeological concerns raised...

Before a bridge over the wetlands could be built, a wetlands permit was required from the town of Concord, and the Natural Resources Commission (NRC) turned the school down. A revised plan was turned down a second time, so the school withheld its signed agreement to contribute 55 acres to the conservation pool until the NRC's decision had been appealed to the Massachusetts Department of Environmental Protection. These actions polarized the situation and alienated townspeople.

The controversy escalated and another group was formed, Middlesex Graduates for Estabrook (MGFE), which began actively lobbying the alumni and trustees on behalf of the Woods. They proposed an alternative strategy of four recommendations to save the Woods, which they submitted to the Board of Trustees: 1) at least a two-year moratorium on the School's plans for the Woods; 2) a better process of bringing together the School's family in its long range planning; 3) consideration of other sites for new fields and other facilities; and 4) the formation of an official graduates' organization. Although the Board contends that they read and responded to these recommendations, representatives of MGFE feel that the four points were dismissed without serious consideration.

Letters and Commentary

Following the previously mentioned activity, I received a long form letter, dated March 15, 1996, from the school, detailing the administration's position and its justification for its intended actions, including its appeal of the NRC ruling to the state's Department of Environmental Protection. The letter also announced an agreement between the school and the town to send the issue to mediation, where they would be joined by representatives of the League of Women Voters and a citizen group. It is in response to this letter from the school that I wrote my first letter to the Head of School, Dr. Deirdre Ling. My intention was to help her understand the position of the environmentally oriented alumni, but as an environmentalist myself, I perhaps aligned myself too strongly with that position. I also did not know at the time that the terms of the mediation prevented her and the Board from responding publicly to the issues in contention. The letter follows:

April 17, 1996

Dear Dr. Ling,

I have never had the opportunity of meeting you in person, but I look forward to the pleasure of doing so one day. In the meantime, I thought I would write this letter about some concerns I have, particularly regarding the Estabrook Woods debate now ongoing, but more generally about directions Middlesex might need to take as we enter the 21st century.

The strongest lesson I have learned, teaching architectural problem solving and design for the last 30 years, is this: If I am working on an intractable problem, one which refuses resolution despite repeated approaches from different directions, chances are I have been working on the surface of the problem and need to go deeper, into the very heart of my assumptions about it, to find a solution.

I think the Estabrook Woods situation may be such a problem. I have read the letters from the concerned group of recent graduates and faculty. I have discussed the issue with my class representative, when he called about the annual fund. And I have read both the annual report, with the statements of the staff, and the more recent position paper of the school regarding the Estabrook controversy which was mailed to all alumni. I think

that there is one very large unstated assumption being held about the School's future which is getting in the way of resolving the issue to everyone's satisfaction. The assumption is that Middlesex in the 21st century be essentially the same school that it is today. That is to say, there should be in the future the same emphasis on traditional academics balanced by a strong athletic program, in a supportive value-based 24-hour living environment. Some take exception to the values part; from the alumni bulletin one would gather that some of the alumni would like to return more strongly to the social or even religious values of the past. But basically, the assumption held is that "we like the way the school is now, and we want to project that essential 'correctness' into the future." Sounds good. How can I argue with that? Yet I think that it is this very assumption which is getting in the way of resolving the Estabrook Woods problem.

What seems to be needed is to look deeply into the way the school operates and to make an honest assessment of whether changes need to be made as the 21st century unfolds. Once that deep thinking is done, answers to surface problems like whether to expand into Estabrook Woods will be obvious; they will simply fall into place without question, or at least that is my position in the matter.

Before I suggest some of the deeper issues to be considered, permit me a small digression. In this election year, with many candidates surfacing at all levels of governance and (if we're lucky) sometimes speaking to the issues, one often hears the expression, "Oh, (s)he's a one-issue candidate," and then some form of dismissal. I would like to suggest that there is now one over-riding issue that encompasses all others–the environmental issue. Today the environment is not often seen that way; it is usually seen as just another issue among many important issues, another marker to be traded in the give and take of politics. When President Clinton signed the salvage rider against his better judgment, he did so to realize some other political gain, but the consequences could be devastating to what little remains of our old growth forests in the Northwest. Not good. Good intentions, perhaps, but not good results. The environment is not just another issue, another pawn on the political chessboard; we have only one Earth. The environmental issue encompasses every other issue because it is the context in which all life, all activity, takes place. We must understand the Earth as we never have before, particularly its ecosystems and our role in and dependence upon those systems. For the first time in the four billion year history of the Earth, one species has managed to alter the climate of the entire planet. Bill McKibben (1989) calls this "the end of Nature," meaning that even the climate is now "man-made."

You can probably see where this is headed. Within the lifetime of the students now at Middlesex, the human population of the Earth will double. Most predictions are that we shall reach 10 billion by the year 2050, about the same time that the world's supply of oil runs out. The population explosion in the developing nations is the principal problem, followed closely by over-consumption in the developed nations. [Some would put

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the poverty of the developing nations before population growth, but either way, it comes out the same.] The sub-problems which flow from those primary problems are anyone's guess, but I think they most certainly would include the following: dramatic climatic change, mass-starvation, arms races and wars over food/water/land/oil, pollution of air/land/water, disease, pestilence, and loss of biodiversity, including devastating deforestation and a severe reduction of species. I'm sure you're as schooled in this line of thinking as I am, so I will not draw it out. The question is, with that troubling context as a backdrop for the future, what sort of school should Middlesex be? What sort of curriculum should it have? How should it conduct its affairs and run its plant? How big should it be?

I would not like you to think that I am suggesting that Middlesex should become a school focused on a single issue, that of the environment. What I am saying is that the 21st century will be like none we have ever known, a century in continuous crisis, brought on by a human population growing out of control, and with concomitant problems in the distribution of food, energy, and resources. If I were advocating a school organized around the environment as a single issue, then the students would be educated and trained in environmental science. But what I mean, by saying that the environment is the context for all that we will do in the future, is that a Middlesex in tune with this new context would be educating students to become statesmen, doctors, lawyers, architects, planners, historians, scholars, teachers, and yes, artists, writers, and musicians, much as it does today, but with one important difference. Today the context is "growth and development"—the dominant value system. In the future, the context will be the environment and the dominant value will be sustainability, that is, living in ways that can be sustained indefinitely in a world of limited resources. "Live simply so that others may simply live," the bumper stickers say. Make no mistake, in a sustainable future, growth (in the sense of human habitation and facilities) is not good.

Reading your literature, I see that Middlesex exhibits strongly the persistence of the growth and development value in the way it communicates to the outside. In the annual report, the written statement of your Dean of Students, describing the conversion of the dormitories comes closest to the spirit of this letter. Your Business Manager's concept of the $2 million student, while not endorsed by him as a concept, is least attuned to what I am advocating here, unless, of course, you never cross that threshold. The quality and quantity of the paper you send out speaks volumes. I would hope that you are recycling as much as possible, and that you haven't forgotten the other two environmental 'R's', reduce and reuse. The fact that the dominant value (G&D) is so obvious is not the point; the point is that I have read nothing that indicates an effort to alter that value. My conclusion must be that Middlesex is currently set up and operating to educate its students for the century just past, a century none of them will live in after they graduate.

What would a future-oriented Middlesex be like? With regard to its physical plant, it would be working to minimize that

plant without cutting its student population. That is, it would use each existing building to its absolute limits. It would pare its energy load at least in half through conservation. It would retrofit its buildings to draw as much of their energy load as possible from renewables, like solar collectors and maybe even wind turbines. It would not consider expanding or building new buildings except to replace old ones which absolutely could not be rehabilitated. And, as an educational institution, it would involve its students every step of the way.

Such a school would be rethinking its curriculum for the benefit of its students to assure that they would be citizens able to play important roles in this uncertain future. It would have broad general courses on the environment and the future. The students deserve to know what it will take to be effective. I have taught such a course to mostly architectural students for the past five years at the University of Oregon. The science courses—physics, chemistry, biology—would be shaped around understanding nature and its ecosystems. Estabrook Woods, Bateman's Pond, and the wetlands are tremendous resources for such study which few schools have, but one has to get out of the classroom and into nature to do it effectively. All other courses, including the traditional subjects and the social sciences would be taught in the context of a world in change, striving to achieve world-wide sustainability. Problem solving, design, and computer usage would be part of the background skill development that is required of all courses. When I taught at UCLA over 20 years ago, I was the founding director of an interdisciplinary program called the Creative Problem Solving Program in which any undergraduate could minor. At the secondary school level, those pragmatic skills would just be what you learn as a normal part of going about your studies.

Returning now to the Estabrook Woods controversy, in a school devoted to understanding the environment and how to live on the Earth, in an overpopulating world rapidly running out of oil and amid nations amassing arms to protect their sources of it, having another set of playing fields just doesn't seem too pressing. Building them at the expense of wetlands and woods does not compute at all. At the college level, I doubt if it will long seem reasonable to fly two football teams, including bands and coaches—a couple of hundred people—thousands of miles to play each other for an hour or two in a bowl game. Similar pressures will surface at Middlesex, and while it may be possible to continue to play Groton and St. Marks, perhaps St. George's will soon be too far away, if it isn't already. In fact, sports might make more ecological sense as inter dormitory games than as inter school games. After all, I would argue, the point is to develop the potential of the human body and to explore the possibility that teamwork has to offer, not to smash some historically chosen rival at a distant school. Blasphemy to some I suppose, but all this is to say that the effort in a future-oriented school would be to get the sports program to fit the playing fields available, not the other way around. Perhaps it is now clear how the assumption of keeping Middlesex unchanged is getting in the way.

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As for faculty housing, a good ecological (and sociological) argument can be made for having such houses close to the rest of campus, perhaps nearby in the Woods. Further, I can imagine places in Estabrook Woods, facing south over the pond, where a few small homes could be set lightly on the land without removing significant trees or disturbing the ecosystem of the Woods. But there would not be roads, or automobiles, or power lines to such houses, in fact, nothing at all except a simple foot or bike path. And each house would be a demonstration of self-sufficiency, generating its own electricity, collecting its own water and heat, and handling its own wastes. It is possible to build such houses, and to make them comfortable, requiring no major changes in lifestyle. Believe me, I've been teaching architectural design for a long time now; I know it can be done. And in a school such as Middlesex, it should be done, even if only for its educational value.

I hope these comments have been useful to you. On your shoulders fall the burden and the opportunity of leadership and vision. It is up to you to set the course which will determine whether Middlesex creates a new standard for the future or becomes increasingly irrelevant. What an opportunity! It is exciting to me to imagine Middlesex as a model of environmental responsibility. I'm sure Frederick Law Olmsted would be pleased. And what an education! To see demonstrated everywhere in the institution around you the principles and values of a sustainable future would be the best possible way to affirm the possibility that one can affect the future. And finally, to send waves of graduating classes so prepared out to take on the 21st century would be the ultimate satisfaction of teachers and alumni alike.

I should say that I think this educational proposal would keep Middlesex highly competitive in its market. There will always be some parents who will opt for the latest facilities and the nostalgia of the past, but there are many others who will be excited by the vision of their children supremely prepared for the future. I would like to see you compete with the other schools by using the accuracy of your vision and philosophy, rather than by outspending them on facilities. I believe that strategy has served your three predecessors well over the history of Middlesex. We have never had the facilities of a Groton, Andover, or Exeter, but we had the vision, and time after time, led the way to a stronger, more relevant, independent school experience. We are again on the cusp, asked to choose a path for the school. Please choose wisely.

It all comes down to vision, alignment, and getting down to work. I would be glad to help in any way I can. I think we can get all parties aligned. What an opportunity! Let's do it; nothing could be more important.

Sincerely,
Charles W. Rusch, '52

Before responding to the letter, Dr. Ling copied it widely to interested parties and gathered feedback. About three months later, I received a reply from Dr. Ling. She

said that my letter had been a point of conversation among trustees, faculty members, and administrators. She thanked me for my perspective on the situation, for my loyalty to the school, and for my eloquence. She said she hoped to meet me someday and invited me to my 45th reunion the following May. Later she explained to me that "to discuss the issues would have been in violation of the terms of the mediation process."

It took me some time to respond to the Ling letter. I was surprised by the brevity of the letter and not knowing that her response was constrained by the mediation, I found it difficult to interpret it as anything but a dismissal. Yet I thought my argument had merit, and more important, I was and am convinced that Middlesex, with its pond, wetlands, and woods could make an amazing demonstration of the environmental direction that our schools could take, indeed, ***will have to take*** in the near future.

Because Dr. Ling had circulated my letter so widely, I thought that she might still be open to the ideas contained therein, particularly if I cast them in a wider academic context. I wanted her to see the full possibility of an educational system based on sustainability as well as see the need for good working examples. It also occurred to me that Dr. Ling probably had very little idea of the background that I was bringing to the issue, so as a primary goal, I thought I perhaps needed to summarize my experience in education and then, as a secondary goal, to give my position a broader base, share with her some of the most telling reading I had done recently related to the subject. I hoped thereby to initiate an ongoing dialogue with her and perhaps with the faculty as well on the possibilities of, as C. A. Bowers puts it, "educating for a ecologically sustainable culture." I therefore wrote a second letter:

September 16, 1996
(abridged March 31, 1997)

Dear Dr. Ling,

Thank you for your considerate letter. I have been thinking since I received it about how or whether to answer it. I don't want to present myself as some kind of extremist, hell-bent on converting everyone to my point of view, nor as another disgruntled alum, unhappy with some aspect of the school. Quite the contrary, I think Middlesex is an excellent school, by any normal standard, and from what I can tell at a distance, I think you are doing an admirable job of administering it. My first letter was intended to clarify why some alums may have found the school's position on Estabrook Woods so troubling. What seemed to me to be missing was an environmental position on the school's part which would be evident not just in its stated policies, but in its planning and building program, its curriculum, the dietary choices of its menus, its waste management, the papers and inks of its publications, etc. With that in place, those alums may have honored the decision to build in the Woods as a necessary action of an environmentally enlightened administration, knowing that it would be done in a way maximally sensitive to the Woods. Without that in place, perhaps

they felt obliged to speak out and to assert the values they hold dear.

It occurred to me after sending my first letter that I should have told you more about myself before speaking my thoughts about the future, lest you think that I am just another grouch mouthing opinions about the state of the world. I have devoted my career to education and been effective on several different levels. Early on, in 1965 at Berkeley, I taught the first computer-aided architectural design studio in the country. Then, at the Center for Advanced Studies at Illinois/Urbana, I studied visual thinking and imagery (before those became popular topics), and worked with third graders in a local elementary school which was part of the University's Curriculum Lab. At UCLA, I helped start the Graduate School of Architecture and Urban Planning with specific responsibility for the Social Building Program, was the founding director of the campus-wide interdisciplinary Creative Problem Solving Program, and later, the Associate Dean of the School. While at UCLA, I also started an independent experimental mobile middle school, called MOBOC, which ran for 12 years and drew much positive attention for both its high quality and innovative character. Finally, after a stint as Head of the Department of Architecture here at the University of Oregon, I went on to develop first the computers-in-architecture program, then the behavioral factors part of the curriculum, and finally, the architecture and environment courses, all while also teaching architectural design studio each term.

So now, semi-retired, I teach one quarter per year and live on the coast of the largest ocean in the world, reading, writing, and exploring my new surroundings. Some days it seems as if I can see all the way to Japan, and on others I cannot even see to the waves breaking on the beach in the fog. I'd like to think that these letters are part of those far-sighted days, but these are complex issues, obscured by the presence of persistent priorities, and you are right to exercise caution. My intention in this letter is to share with you some of my recent readings which bear upon the issues raised in my first letter. The viewpoint represented by these letters is not just my personal perspective, as your letter implies, but is widely shared in a very large literature.

Of the dozens of books I have read since moving here, the one which is most relevant to these letters is C. A. Bowers' latest (1995) book, *Educating for an Ecologically Sustainable Culture*. Bowers is a professor of education and the book appears to have been written for an academic audience, that is, other educators, such as you and me. The message, the insights, and the vision I found quite remarkable. The subtitle is, *Rethinking Moral Education, Creativity, Intelligence, and Other Modern Orthodoxies*. It is as profound a piece of "rethinking" as I have read. On the chance that you may have not yet come across this book, I should like to review it a bit here.

Bowers spends only a brief preface on the environmental issues; he assumes the readers are up to speed, and want to know what education would be like in a sustainable culture. A broad introduction raises the issue of how a culture's beliefs and

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myths shape its action, and gives an overview of the book, indicating the "modern orthodoxies" he intends to attack. In the second chapter, he begins with moral education. Drawing broadly from philosophy, psychology, ecology, and educational theory, leaving Piaget, Kohlberg, and others in his wake, and with help from Aldo Leopold, he ties right and wrong to a "land ethic" as the fundamental building block of a sustainable culture. To quote, "Whether viewed as individually or culturally centered, behaviors are wrong in every sense—morally, politically, educationally, economically, and ecologically—if they threaten the integrity, stability, and beauty of the biotic community." Quoting Alan Durning, he says, "the new Golden Rule is simple: each generation should meet its needs without jeopardizing the prospects of future generations to meet their own needs."

In the third and fifth chapters, Bowers challenges our concepts of creativity and intelligence, respectively, as tied too firmly to individuality, a concept not tenable or defensible in a sustainable culture (which should be "ecocentric rather than anthropocentric)." As I understand it, the problem is not so much with individualism as with independent individualism. Every cell and every organ in our body can be seen as an individual cell or organ, but not as independent of the other cells or the body as a whole. Similarly, each of us is absolutely dependent upon the ecosystem of which we are a part. If we would see ourselves that way, we would not think of taking any action which would damage the ecosystem, because we are part of that ecosystem and we would be damaging ourselves. I tell my students to try to identify not so much with their names, attached to minds (in heads on bodies), as with their awareness. If each of us could actually **be** our awareness moment by moment, then we would just naturally take care of the environment as we now take care of our bodies—as part of who we are. But instead, we foster a view of creativity as being the original, self-defining expression of the individual, and intelligence as the self-defining capability of the individual. Unfortunately, both of these taken-for-granted assumptions are held central to our culture and to what we consider good education. Now we are beginning to reap their devastating consequences.

One of Bowers' most interesting chapters is the one on Trans-Generational Communication. The full title is, "Toward the Recovery of Trans-Generational Communication in the Educational Process." Essentially, he argues, as others have, that we have thrown away much of the knowledge and many of the ways of knowing possible in our culture by retaining only what can be put down in books, film, and on computer disks. Or, to say it another way, there is no longer any avenue preserved for learning from our Elders. Indeed, there are few left who would even qualify as Elders. He gives many examples from other cultures (sustainable cultures) where that chain has not been broken and powerful ways of knowing have been preserved across the generations. Bowers sees this form of communication as critical to achieving sustainability. In his final chapter, Bowers reviews three very different experimental educational programs that most closely model what is needed in a sustainable culture.

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Partly because none of the three were created for that purpose and the fit to his criteria is somewhat loose, this is Bowers' least convincing chapter, but at the end one has a sense of what the curriculum and style of such a school might be.

All in all, it is a remarkable book; one that has already contributed enormously to my understanding of myself and my task in what remains of my life. I hope this very inadequate summary will lead you to study this book, if you haven't already.

To address the architectural side of sustainability, I would like to mention briefly three other books; they are: *From Eco-Cities to Living Machines* by Nancy and Jack Todd (1994), who live and work in Massachusetts; *Ecological Design* by Sim Van Der Ryn and Stuart Cowan (1996); and *Deep Design* by David Wann (1996). All three speak to the issue of designing communities for sustainability, and thus bear upon the sketch I included toward the end of my last letter about what Middlesex might be like if it went down this path. We need schools which teach through example (buildings, landscapes, gardens) the great good sense of living in harmony with the earth. These books contain an abundance of information about alternative building materials, forms of renewable energy, natural wetlands-based waste treatment systems, alternative transportation systems, alternative forms of agriculture, and alternative forms of community planning. The Wann book is the most comprehensive of the three, with dozens of examples from all over the world of these systems in place and working. In addition, it is one of the most upbeat and hopeful in a genre which tends toward the glum. None of the three has the depth of insight into our culture that the Bowers book does, and they therefore drift into recommendations now and again which I am sure would violate many of his stringent criteria. In particular, Wann thinks we can design our way out of this mess, and reviews a myriad of ongoing work intended to do just that. However, he doesn't ever mention the growth of the human population rolling on in the background, so I am afraid some of his deep designs are not deep enough. All three books will be assigned in my "Sustainable Architecture" class this fall, and are positive, hopeful, and readable by Middlesex students. It is exciting reading.

My new "home town," Florence, Oregon, is a small coastal town of 6,000 residents, a little over an hour's drive directly west from Eugene. It is about as pretty a drive as you get, winding through the Coast Range of low mountains, through forests of cedar and fir, and along the edges of streams and rivers. However, if one looks directly through the trees along the road (what environmentalists call "beauty strips") one can periodically see the clear cuts in the forests. The only signs of life in these areas are the seedlings trying to start another forest, but growing at best into a tree farm instead. Flying in a plane overhead, [one sees that] the clear cuts become a dominant part of the landscape forming a checkerboard pattern of scars. Rather than learning to live as a part of nature we are destroying it to get our lumber, read our newspapers, and eat our beef.

If the population of the world were stabilized, we might be able to maintain this pretense, that we are not part of nature

and not subject to its laws. However, mirroring my remarks in my first letter, we are currently adding 91 million people per year to the world's population, equivalent to the population of the United States every 2-1/2 years. At this rate, the population will double every 41 years—unless starvation, pestilence, and/or birth control slow it down. The forests of the world may someday be as rare as a cedar in Lebanon.

There ***is*** another way; I find it almost fully spelled out in the literature, but it requires a cultural shift so enormous, I am not sure we can make it. And that is where the schools come in. Can we raise the next few generations with a different mind set, with different goals and values, into a different culture, and into a different, sustainable, future? I hope so. Perhaps Middlesex will lead the way, perhaps not, but the moment will come when the direction of education will shift to support sustainability; it has to come. Will it come in time? When you're talking generations, 41 years can pass by very quickly. We need at least enough lead time to educate one generation, and before that, educational models in place for the world's schools to emulate. In the past, one of the places we looked when we needed such a model was in the independent prep schools of New England. I would like to think that is still the case.

I'm available. Let me know if there is some way I can contribute and return the gift that my Middlesex education was to me.

Sincerely,
Charles W. Rusch, '52

Results of Mediation

Still constrained by the mediation process which was to go on for 7 months, Dr. Ling chose not to reply to this letter. I, of course, had no idea why I was getting such a minimal response, and I began to doubt my effectiveness in the matter.

In the meantime, after eight meetings of mediation between the Board and the NRC over a 7-month period, a settlement was announced. The school agreed to sign over 49 acres to a permanent conservation restriction (CR), and agreed to place another 46 acres in CR status upon approval (permits) and construction of a bridge over the wetlands to the "East Fields." The school retained the rest of its land for future building expansion. On half of the retained land, it promised not to build the fields before June of 1999 and the housing for 7 years. On the other half of the retained land, it promised not to build anything for the next 20 years. In other words, if approved, the school would get its wetlands permit and pretty much the rest of what it wanted all along, but not immediately. In exchange, it would eventually commit 95 acres to permanent CR status rather than 55. [In several documents, the School has stressed the fact that it knows of no other school anywhere which has signed over any portion of its land to a conservation restriction.]

In the mediation agreement, the opposing parties would get the school's plans to construct new fields in the Woods delayed for 2 years and the housing delayed for 7 years, giving time for both sides to rethink the necessity of expansion and alternative

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locations if needed. Because the building of the bridge, its foundation and roads, and perhaps even the site preparation for the fields was not part of the moratorium and, in the opinion of some, would do the bulk of the damage to the wetlands and the Woods, the Concord Historical Commission, the Thoreau Country Conservation Alliance, the Thoreau Society (Thoreau walked these woods), the Sierra Club, and the MGFE, were opposed to the settlement, but Concord's Natural Resources Commission, after holding a number of public meetings, signed it.

Probably the most favorable outcome of this controversy is that the Board of Trustees of the school has seen what a serious step an expansion into the Woods is considered to be and as part of the mediation has agreed to consider other alternatives. Of course, the Board thinks that it considered all other alternatives in its expansion study conducted between 1990 and 1993. However, now with the opposition to its choice (expansion into the Woods) so passionately aligned, it might see the necessity of reconsidering some alternatives previously rejected. MGFE thinks that the school should begin acquiring land across the road as it becomes available, and indeed has proceeded to raise money and purchase a 3-acre parcel just west of one of the road properties in order to start the process off. The Board had previously rejected that option as basically unsafe, given the high volume of traffic now common on Lowell Road. MGFE, cognizant of this, still seems determined to get an alternative agreed upon before the Woods is permanently scarred, but so far has not yet gained an equal place at the table. If they raise all the money needed to purchase enough land (12 to 15 acres) across the road (as it becomes available) as the basis for an alternative, they may yet prevail. That they raised $400,000 in gifts and loans in such a short time to buy the first parcel is truly remarkable, but given the scale of fund-raising that would be required to complete the full purchase, MGFE is unlikely to embark on such a campaign without the full participation and support of the School. As of this writing, Middlesex has yet to commit to a process that involves MFGE and others in planning for the aquisition of alternative development sites. Perhaps the happiest outcome of this effort would be for the Board and MGFE to join forces in their fund-raising efforts to do so.

Response to School Plans for Expansion

At the present time, it is hard to say if the Woods have been saved from development or not. The Trustees seem quite committed to building the bridge across the wetlands as an option for future expansion. They see building the bridge now as fulfilling their fiduciary responsibility to the school. It would seem to me that in the future we shall all have to do *more* with *less*, particularly with regard to the use of land. At this point, I am still not convinced that the school cannot do it all—build more playing fields, respect the Olmsted plan, and save the Woods—without going across the road. I do not think that the bridge needs to be built and, in my opinion, building a large bridge to nowhere could make it and the Board objects of ridicule, while using it to provide access to extensive construction in the Woods might alienate up to a fourth of the school's so far loyal alumni.

As for expansion, I think that a good argument could be made socially and pedagogically for increasing the size of the Middlesex student body to around 400 students, but rather than build more dorms and playing fields for these extra students I would enroll them into a variety of study abroad programs in the languages, arts, sciences, and environments of cultures around the world. In other words, at any one moment, Middlesex could be maintaining a significant portion of its student body at off-campus learning sites. If so, just think of the rich experiences they would bring back to campus when they returned!

As situations go, I found that I was never particularly able to remain a dispassionate observer in this one. Then, in the midst of it all, the opportunity arose of writing this article for a wider audience about Middlesex as a case study and about some thoughts on curricula for an ecological education which had been taking shape in my mind. I decided to write one more letter, but this time directly to the Board. I believe the Board and I are worlds apart on these issues, but you never know; perhaps it will be helpful to all parties to have another, distant, voice speak for the Woods.

July 11, 1997

Dear Members of the Board,

This letter is written in response to your invitation to comment on the proposed plans to expand the school across the wetlands and into Estabrook Woods. I appreciate the invitation. As many of you know from my letters, I am not in favor of that particular expansion. I do not intend to dwell in this letter on my reasons for that conclusion; I would rather concentrate on the possibilities present now in this post-mediation period for bringing the disparate parties together into a common vision for the school.

I will, however, **summarize** my reasons for opposing the expansion. I have followed the situation carefully from the moment I received that first concerned letter in September 1995. As someone trained in architecture and someone who has taught architectural design for some 30 years now, it seems to me that the central idea of this expansion was doomed with difficulties right from the start. First, there is the wetlands to cross, then there is the slope of the land to contend with, then there is the composition of the soil (which some say is largely rock) on which to somehow create large, level, well-drained irrigated playing fields, then there is the historic and natural value of the land and woods, and finally, there is the emotional and sentimental meanings which are loaded onto this piece of land where Thoreau once walked. I think these woods can be fairly termed as sacred to the Middlesex and Concord communities. As if that were not enough, when the final bids come in, I believe you will find the project prohibitively expensive. Building in the Woods is simply a bad idea.

If there were no other alternatives available, the idea might still be considered further if the need were great enough. However that need has not been convincingly established, and there are quite good alternatives available. I have studied the one proposed to you by Carol R. Johnson Associates for tightening up and reorienting the existing fields and I think that it shows great merit. My best professional guess is that, while tight, the School could

make that scheme work, and while regrading and replacing the irrigation lines will be costly, it certainly has to be less expensive than the bridge and hillside scheme. In one stroke, it not only corrects the orientation of the present fields, but also preserves the Woods (!), saves money, and demonstrates for both communities the excellent judgment and intentions of the School and its Board. That scheme could be a winning idea; it should be reconsidered.

You have stated that you believe you have a responsibility to build the bridge to keep the option of building in the Woods open for the future. I say just the opposite—you have a fiduciary responsibility to close down that option forever. Future generations will **treasure** the Woods, but will not value another set of scars in the landscape. Please do not build that bridge. Enough. That's where I stand in the matter.

Having lived in distant parts of the country since graduating from Harvard in 1956, I have had only a few opportunities to visit Middlesex in the intervening years, and fewer yet to get to know any of you. My last two visits were to my son's graduation in 1980 and my 35th reunion in 1987. It is therefore with a feeling of inadequacy that I turn to the task now before me. I would like to shift this "conversation" from the negative to the positive, from short range problems to long range possibilities, from woods to overlook, if you will, and I would like you to come along with me on it. I know I can be accused of not keeping up with the many positive changes to Middlesex over the last ten years, and of not being aware of how you have all personally contributed significantly to making it the fine school that it is. My only response can be to agree that that is true, and to state that I **have** been attentive, if from afar, and that I have also been a responsible student of the world situation.

I think that Middlesex can make an enormous contribution to the world in the next 50 years by taking this present situation and turning it into a quite remarkable demonstration of all that is positive about the independent New England private preparatory school. Before I get into spelling out that possibility, permit me one necessary digression.

Albert Bartlett is a retired professor of physics from the University of Colorado at Boulder. For many years now he has been traveling around the country and giving the same lecture wherever he goes. It is not that he has only one thing to say, but that there is one message so important he has decided to devote his life to speaking it whenever he can. Perhaps you have heard him speak. The message has to do with understanding the arithmetic connected with the population explosion, in particular, the relation of the growth rate to the doubling rate. The arithmetic is simple and known to every business person; if you divide the constant 70 by the percentage growth rate, you get the doubling rate. The human population of the world is currently growing at 1.7% per year. At that rate, the total population will double in about 41 years—and then again in another 41 years. Of course, if we can slow down the growth rate, it will take longer to double (whence the prediction of 10 billion people by year 2050).

In his talk, Bartlett tells the following story: "Imagine a microbe in a jar which reproduces by dividing in two every minute; that is to say, it has a doubling rate of one minute. Imagine that

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the jar is of a size that it takes exactly one hour for the microbe to fill it, and that the microbe starts at 11 pm and completely fills the jar at midnight." Then Bartlett asks, "At what time will the jar be half full?" He pauses, "Yes, one minute to midnight. At what time will the jar be a quarter full? Yes, two minutes to midnight. At what point do you think the microbes will realize that there is a problem? When the jar is half full? A quarter full? An eighth full, that is, three minutes to midnight?"

Bartlett develops this line of thinking over an hour's talk, but you get the point. Our doubling rate is every 41 years, not every minute. But what time is it? One minute to midnight (41 years, 11 billion people)? Two minutes to midnight (82 years, 22 billion people)? At what point do you think we will realize that there is a problem? What size human population can the world sustain? At some point our growth will have to be constrained; how will that happen? Can we even slow it down?

I believe it is now clear to most thoughtful people that the growth rate of the human population, a modest 1.7% annually, is the mother of all our global problems. In my first letter to Dr. Ling, I discussed the implications of these facts for the school. I am not saying that there is anything "wrong" with the school. I readily (proudly) agree that students at Middlesex get the finest education available in the country, but I am writing to say that that education will not be sufficient to meet the challenges of the 21st century. I say this, with some conviction, out of the fact that that very fine education is based upon all of the same assumptions of western culture which created the crisis we're in! We need a new model for our educational institutions to emulate, and I think that Middlesex is uniquely positioned to create it. Not incidentally, I believe that making this new commitment and gradually moving the school in that direction will resolve all the problems it now faces with regard to expansion. It will also heal the division which has recently occurred within the school community. We need to move to a new set of cultural assumptions, and the leadership of the Board is critical to making that shift possible.

I hope that in making these statements, you do not consider me an alarmist. I do not think of myself as an alarmist. Paul Revere sounded the alarm, but was he an alarmist? Do you think that he had a problem convincing the countryside that the British really **were** coming?

Apparently, Milton Academy has gotten the word, and is on the move. Not only do they have an outreach program, located in Vermont, called the Mountain School Program, but they have taken on the 26 million acres of the Northern Forest as a "student" project. The idea is to do some true problem solving on a complex real issue, interview and research all sides of it, and make a set of recommendations. [To start its exploration, Middlesex does not need to find an issue, it just needs to use the one it has created in its very own forest as a educational project.]

In my second letter to Dr. Ling, I reviewed *Educating for an Ecologically Sustainable Culture* by C. A. Bowers (1995). At the end of this important book, Bowers reviews three programs which more or less fit the criteria he has drawn up for such an education. One of the three is the Common Roots Program, now being adopted in many elementary schools in rural Vermont, which teach-

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es children the connections among food, community, and ecological responsibility, including some time spent growing their own food. There are many watered-down versions of similar programs springing up around the country, and even something of a backlash against them and against environmental education in general. Just last week, the *Investor's Business Daily* (July 3, 1997) had an editorial decrying such course work in a school in Los Angeles as mere gardening and an unfortunate distraction from traditional education. The Common Roots Program in Vermont is much more than gardening, but I would agree that while gardening has its values, it would not by itself form the basis for a new direction for 21st century education.

The Orion Society comes closer. In their magazine and notebook series they frequently cite work done in a movement called "place-based education" which I think holds great promise for reconnecting our culture with our environment in a meaningful way. The Society itself has helped develop programs which connect school children with interns from Middlebury College to blend outdoor excursions (some overnight) and careful observations with art, and expository or creative writing exercises.

On the other end of the country, in Hawaii, the School for Field Studies sends high school and college students with well-qualified professors, to six centers they maintain around the world, to conduct studies in wildlife management, marine resources, sustainable development, and the protection of wetlands, coastal environments, and rainforests. San Francisco State University, through their College of Extended Learning, has a similar program with trips to the wilderness areas of the U. S., as well as to Baja California, Nepal, Russia, New Zealand, and Thailand. Many of the courses in both of these programs are given in the summers, but an almost equal number are given throughout the year, when the climate is favorable in their part of the world—and all for course credit. Most are led by scientists.

For decades, the University of Oregon has had a residential marine science program on the Pacific coast at Charleston. Students go there for a quarter and take courses in marine science which have a large direct-experience component. In addition, Oregon has an environmental studies program which has over 600 undergraduate majors and 30 to 50 graduate students. Both programs are broadly interdisciplinary with a heavy emphasis in the sciences and both have more recently begun to incorporate courses from the humanities as well. I consider these strong programs, but weakened by omitting the outdoor emphasis of the above programs.

If Middlesex were to move in this direction, what are the possibilities? I think it would be important that the transition be gradual and seamless and that it be place-based in structure. I would start with having a class of students study all sides of the current Estabrook Woods controversy, with a final presentation of their findings to the School and to the Board. I would then make sure that the existing science courses, particularly the life sciences, have as large a direct-experience component as possible. That is, the students should spend enough time outdoors studying the ecological systems of the area to become familiar with the particular niche in which the school is located. Next they should learn as many of the plants and animals in the ponds, wetlands,

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and woods as possible. They should study the seasons, the weather, and the effects they have on the local ecology. They should study the anthropological history of the area, its settlement patterns, and how the architecture reflects the people, the climate, and the building materials available. These latter studies might be several years from now and adjustments might have to be made to the current curriculum to fit them in, but by then a structure would be emerging to do that. Throughout, what the students were learning and feeling about the particular place in which the school is located would be routinely expressed in their writing, their poetry, their art, and their drama. And, of course, the philosophy and values underlying the curriculum would be evident throughout the operation and administration of the school, its publications, and its physical plant, as I outlined in my first letter. The goal would always be towards an integrated whole, a holistic comprehensive understanding of a natural system that includes humankind as one of many species wrapped up in the swirl of its ecological forces and determinants.

As the teachers and the students begin to feel comfortable with their knowledge of local conditions in these ways, the circle of understanding could be widened. Perhaps the connection would be through the seasons and the weather which are clearly part of larger systems, or perhaps through the natural step from the local ecology to the ecology of the watershed and then to the bioregion. Or perhaps the expansion in scale comes from following the wildlife corridors of the animals into the Northern Forest or the migratory flights of the birds which stop on and near Bateman's Pond for renewal. However it happens, at some point the scope of the study should be expanded to deepen the understanding. I would expect that the direct-experience learning would expand as well with frequent trips out into the region. I would further imagine that the expansion of scale would match the students' progression in the school, so that the seniors would be considering global systems, including both natural ones related to planetary health, and the political/economic systems that have impacted them.

Summers, particularly for upperclassmen, might be spent in another culture in some other part of the world, maybe as part of the previously mentioned environmental science programs, or with other study abroad programs. We want the students to understand the cultural roots and cultural assumptions that have led to what is happening to our planet and to humankind. One of the best ways to achieve that understanding is to be thrust into a quite different culture.

Finally, while all the above is perhaps straightforward and if done well would create an opportunity for a transformation of one's relationship to nature, I still do not think it would be sufficient to meet the challenge we face. There is no easy way to say this. I think that what is called for in the next century is giving up much of the ease of living given to us by our culture. Our comfort and high standard of living have come at the cost of natural systems that are now depleted perhaps beyond restoration. We are over-fishing the oceans, exhausting our topsoils, drawing down our supplies of water, denuding our forests, and changing the very climate of the earth. In our success at taking care of our own, we have threatened the longevity of the species. We now need to give

to the next generation the basis for establishing a new culture, a simpler one, still satisfying and civilized, but one that can exist, not in opposition to nature, not even in harmony with it, but as part of it. I have some ideas as to how to create such a transformation, but they will have to wait for another invitation. I would imagine that I have long since exhausted this one.

I think that Middlesex is uniquely poised to be the model to bring forth the transformation in education indicated above. It has the perfect physical plant and campus setting for such an exploration, with pond, wetlands, and woods, and it has a reputation as one of the finest schools in the land. I happen to think that, as one of the top schools, it also has a responsibility to lead the way. What we need is to state clearly our common purpose and our concerns about the future. Thus the process would start with a declaration of the vision as well as the commitment to see it through, or to put it in business terms, a mission statement to which we all subscribe. That declaration is what will unite us and heal our divisions. I believe that such a vision is what has been missing and needed in the controversy over the Woods. In the context of the above argument, expansion into the Woods is not a vision about the future; it is a sacrilege. We need a set of new goals to give the school a new direction and to bring us together around the task of educating a generation of graduates to meet an enormous challenge—men and women to match our mountains, if you will. I have no doubt that the journey offers excitement, relevance, purpose, direction, the camaraderie of shared action, alignment with nature and with each other, and perhaps, for some, the spiritual transcendence of which Thoreau and Emerson once wrote. It is a task worth engaging; I would be happy to join with you in carrying these ideas forth.

I apologize for the length of this letter, but I assure you it is only a sketch of what I have to say on the subject. Thank you for the invitation to write and for your attention.

Sincerely,
Charles W. Rusch, '52

Conclusion

Ultimately, the controversy of whether to build or not in Estabrook Woods will be resolved, one way or the other. In this case, the controversy was over new playing fields and faculty housing. In another school, it could as easily have been over new classrooms, a science building, computer labs, or art studios. As I made clear in my letters, if the school had had a view of the future as something other than a continuation of the past, and was busily preparing for that future, the whole controversy might not have happened. We all need to learn to do more with less and to do it in a "natural" way—that is, in a way which demonstrates the same economy of means that nature demonstrates daily. There is no waste in nature.

The case represents a circumstance which will become more and more frequent as the years pass and the environmental crisis intensifies. Today, the dominant value system of the culture is "growth and development." In the future, the dominant value

will be sustainability, that is, living in ways that can be sustained indefinitely in a world of limited resources. We do not have a lot of choice about this; it **has** to happen because the earth has finite resources and a limited carrying capacity. Further, with the human population of the world expanding out of control, we do not have a lot of time to effect this enormous shift in values—perhaps 50 or 60 years.

The growth and development paradigm of our culture will not go quietly. In fact, growth is such a deep part of our history, that it is hard for any of us to imagine a future without it. One of the most useful middleground statements made on the subject that I have read is by Paul Hawken (1993) in the *Ecology of Commerce.* This author and co-founder of several successful businesses picks up on and extends a distinction **between** growth and development made by economist Herman Daly in his powerful book, *For the Common Good* (1989,1994):

> A growing economy is getting bigger; a developing economy is getting better. An economy can therefore develop without growing, or grow without developing.

Hawken (1993) then goes on to add,

> The idea of development implies that the product or service supplied will actually help people use fewer resources in the long run, and at the same time will serve or improve their lives... A company...should provide a product or service that helps people develop their lives, and not merely increase the amount of their possessions. (p. 140)

I think that one could say the same for schools. It is a distinction that could unlock the future at Middlesex—hold the growth, no more expansion, bring on the development, orient it all towards educating a generation of students who are in tune with the environment and its needs, who want to contribute, but also want to live simple satisfying lives of constrained consumption. It is incumbent upon each of us as educators to address critical environmental issues now, to bring them before the schools and school boards with which we deal, and to help align all parties behind a vision of what is necessary and needed from the field of education in building toward a sustainable future. This effort must necessarily be interdisciplinary; we need to weave together education for not only art and architecture, the subjects of this anthology, but natural and social science, as well as literature, history, and language—and all in a context of ecological sustainability. We need a new model for a new culture if we are not to become an endangered species ourselves. Unfortunately, we need it *now.*

Epilogue

Three months after I sent my third letter to the president of the Board and to its East Fields Planning Committee, I had had no response. The school was doing a fairly good job of sending out letters to the alumni regularly summarizing the situation and

the Board's current position and actions, and I was about to conclude that that would have to suffice. The trustees were probably getting dozens of letters, and the only reasonable way to respond to them all was with general mailings of summary statements. However, just as I was about to conclude that I had done all that I could, I heard that there was a Board meeting coming up. I decided to try one more time by sending my latest letter to each of the trustees individually. Very shortly after doing so, I received four personal replies from Board members thanking me for my thoughts, and a long 2-page letter from Dr. Ling, now free from the constraints of mediation, responding to the issues. I answered them all, and while the issues are by no means resolved, these last letters bring some closure for me and some balance to this phase of the correspondence. Here is the letter from Dr. Ling, followed by my response.

October 8, 1997

Dear Professor Rusch:

I am writing to thank you for the very thoughtful letter which you addressed to the Middlesex School Board of Trustees this summer. This letter, as well as your earlier letter dated September 16, 1996, are among the most thought-provoking and reflective responses to the School's proposed East Fields project which I have had the pleasure to read. I appreciate your desire to inform the School about important work done in the area of environmentally based education, to influence the direction of curricular revision and, indeed, to help shape Middlesex School's agenda for the future.

These letters are useful and timely as we approach the symbolic moment of a new century. Your remarks strongly support the integration of the study of the environment in a traditional curriculum, and the extension of the intellectual and cultural reach of our students beyond the confines of contemporary American culture. Both areas are of genuine importance to me and useful to the entire community as we conduct a curricular review of all our offerings throughout the academic program.

Since your remarks are largely oriented toward the area of the curriculum normally considered the science program, it may be important to note that the place of science in the academic life of Middlesex School has increased in significance in the past few years. This year, for example, more than three-quarters of Middlesex's students are studying science. Within the School's science program, environmentally oriented study has grown steadily. Biology, for example, is increasingly taught from an environmental perspective. Middlesex School is also an active member of a Concord-area Environmental Science Consortium. This organization of science teachers from Middlesex, Concord Academy, and Concord-Carlisle High School offers each year an environmental science course which includes significant field research utilizing the local ecology of woods and ponds.

As a further indication of the significant place of science in the academic program, this week we are about to inaugurate a Science Lecture Series designed by the noted M.I.T. writer and physicist (and Middlesex parent), Alan Lightman. The opening speaker in the series is a distinguished biologist, Prof. Robert

Weinberg, co-founder of the Whitehead Institute for Biomedical Research. At the Board level, the Trustees recently added John Blanchard to their ranks. A professor of biochemistry at Albert Einstein College of Medicine, John is enthusiastic about assisting the School in thinking carefully about the role of science in the curriculum.

As Middlesex approaches its second century, we find that our students are already moving into a world which appears to be significantly different from our own. The central question which your letters pose is an important one, and one that we will employ in our ongoing curricular review–that is, what kind of education will be sufficient to meet the challenges of the Twenty-First Century? This timely question was considered recently in a series of Trustee/Faculty discussions. While it was clear to all of us that this question is important, it was also clear that we could not agree on a single answer to the question. It may be true that we need a new paradigm for our educational institutions, but it may also be true that there is more than one conceptual model to inform curricular choices in the future. In that case, it will be prudent for the School to search broadly for new curricular options. The demands which may be placed on the School in the future–on its trustees, faculty, program and property–may be ones that we cannot anticipate at this time. Therefore, with regard to the School's land as well as other parts of its heritage and traditions, we must be, simultaneously, both faithful stewards and the agents of thoughtful change. In sum, in order to uphold our fiduciary responsibilities, we should not limit our ability to make a wide range of decisions in the future.

I appreciate the opportunity to read your engaging and useful thoughts about curricular reform and the direction of the School in the future, and I look forward to continued correspondence. I also hope to meet you on my next trip to the Northwest on behalf of Middlesex School.

Sincerely,
Deirdre A. Ling

And my response:

October 13, 1997

Dear Dr. Ling,

I returned last night from a weekend in Eugene to find your letter waiting. First, I want to thank you for taking the time to respond. From my days as department head, I can imagine how fully scheduled your life must be. Add to that the complexity of life in a boarding school and its 24-hour format, faculty, 300 plus students, their parents, 3000 alumni, 38 trustees, fund-raising and community building events and trips, etc., and it gets a little overwhelming to think about. So when I thank you for taking the time to answer my letters with a considered one of your own, I truly mean it.

I almost didn't come out here to the beach today. I teach my Sustainable Architecture class on Tuesday evenings and I was

tempted to just stay in Eugene until then. But the morning broke sunny, clear, cool, and calm and I knew I had made the right choice. The ocean has been roiled with storms as of late, but today the waves are rolling in out of a smooth ocean with machine-turned precision... And the pelicans are here fishing! They glide up and down the waves in small squads, barely moving their wings as they seemingly surf the thin currents of air just above the crests. Every so often one peels off and with a large loop, up and down, plunges into the water for a fish. Remarkable.

As for your letter, I certainly appreciate the fine words. It is a great thing to hear from the Head of one's old school that one's letters are "among the most thought-provoking and reflective responses to the School's proposed East Fields project which I have had the pleasure to read." It is gratifying to hear that you are putting them to use in the discussions you are having with faculty and trustees. I am also pleased to read of the environmental emphasis in parts of your science program, of the new lecture series, and of the appointment of Prof. Blanchard to the Trustees.

However, the end of your letter gives me some pause. You say that in your Trustee/Faculty discussions about the 21st century, "we could not agree on a single answer to the question. It may be true that we need a new paradigm for our educational institutions, but it may also be true that there is more than one conceptual model to inform curricular choices in the future." Of course, it is not surprising that such a diverse group would come up with a diverse set of priorities and directions for the school. I somewhat addressed this issue in my first letter when I spoke of digging deeper to get below the surface of an intractable problem, and again later when I spoke of our wariness of the single issue candidate.

I don't think we can look upon the environmental viewpoint as just another conceptual model to be placed among many others. It is much larger than that. That is why I referred to it as the **context** for all action in the future. It is true that there are numerous competitive conceptual curricular models afloat today, but all exist in the context of this massive environmental dilemma. We need to pick those models which not only serve our diverse interests but also work to address and ameliorate the environmental context. So I suggested that we hold on dearly to what we can of the curriculum of traditional schooling, but begin broadening it and deepening it to address that larger context. Ideally we would wind up with a curriculum (and a school) which is culturally diverse, meets the special interests of parents and trustees, and in every component pulls us into harmony with nature while teaching us how to heal the environmental damage we have already done. I imagine that sounds impossible, but I suggested a set of programs which might begin to do it and you suggested some of your own in response.

That suggested structure, I believe, could form the basis for a new institutional paradigm.

Let me try to state the dilemma as clearly as I can. The problem is that we are so privileged in this country, having all of our needs and most of our wants satisfied almost immediately with merely a phone call, that we shall be isolated from the worst effects of the environmental crisis for decades. But the environmental crisis is happening **now** in Somalia, Rwanda, India, Bangladesh, Indonesia, Brazil, Mexico, and many other countries. For them it is not some abstract possibility. But it is for us, and therefore capable of denial. Other alternatives seem to exist—surely we can still grow our way out of this mess... We all want to believe that this is so, and so we keep our economy growing by buying resources from poor countries and producing more and more products, hoping that we can sell enough back to them to raise their standard of living and get **their** economies growing. And in the meantime, there are 90 million more mouths to feed every year and fewer and fewer resources left from a finite supply. Unfortunately, the earth itself is not growing to keep step with our demands on it.

I do not think the situation is hopeless. It is hopeless if we do nothing about it, but as I said in one of my letters, the answers are all worked out in the literature. We know what we have to do. The problem is producing the enormous shift in our culture that is necessary right now when all of our needs are satisfied by just picking up the phone. It is too easy to say, "What problem?" "Is there a problem?"

I **know** there are many curricular models and each has its strengths, but there is only one over-riding environmental collapse in the works. We need to use every curricular program and tool possible and we need to put them all into service of this one contextual problem, while we still can. That may sound like a limiting, confining thing to do, but I cannot imagine a broader, more holistic, more liberating education for the students. To do all of this, we need dramatic, concerted, educational leadership, and we need to continue graduating students who are increasingly prepared to meet the challenge.

I would love to meet with you on your next Northwest trip; just let me know when and where.

Sincerely,
Charles W. Rusch, '52

Over the last 2 years of observing the events of this controversy unfold and of interacting with its participants, I have been struck by the sheer number of well-intentioned people who are volunteering their time and intelligence to resolving its issues. While each "side" has its "opposition," there are no antagonists here. Dozens and dozens of individuals are devoting hours and hours of their time to seeking the best

outcome for both the School and the Woods. Imagine what we all could accomplish if we were pulling in the same direction, if we had a common vision as well as common goals. If you can imagine that and act on it, then perhaps the 21st century will not prove to be as bleak as I have predicted it will be in this chapter. I hope so.

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About the Author

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USER GROUP PARTICIPATION IN DESIGN EDUCATION AND THE BUILT ENVIRONMENT

Anne Taylor
University of New Mexico

Students in America want their education to be "real"! Architecture and Design Education is a way for students of all ages to create new and exciting indoor and outdoor learning environments. This chapter is devoted to examining the state of the art of school facilities as well as describing a design education program which empowers students to employ integrated processes and practices to design learning environments and other projects. A participatory design process involves students, teachers, parents and community members in a creative and unique architectural programming process that helps them creatively solve problems together. It is a dynamic challenge for art educators to begin teaching architecture and design as a form of social and community action. Design education is not just about color, line, form, space and texture, balance, rhythm or harmony or art for art's sake. It is an integrated form of knowing and a form of systems thinking that uses multiple variables from math, science, social studies, and art as a way of expressing oneself visually, spatially, and through three-dimensional models, making critical aesthetic judgments about our material culture and solving or dissolving problems.

Introduction

Students everywhere both in the United States and elsewhere are crying, "Make our education real!!! Make it real!!!" At the same time that students want their education to be real and relevant to real life, educators, and architects have finally awakened to the almost desperate need by school districts throughout the country for newer and updated learning environments with which to enter the 21st century.

Fifty percent of U.S. school buildings were constructed cheaply and rapidly in the 1950s and 1960s, built as if educators and architects used cookie cutters to create predetermined 900-square-foot classrooms, double-loaded corridors, gyms, and cafeterias. Many schools need major repairs, contain environmental hazards or exceed their

planned capacity. In many cases the playground, perhaps the most valuable piece of real estate in the neighborhood, has been forgotten, left as a barren patch of ground, when in fact, it could become a vital, interactive landscape design for learning, recreation, physical fitness, growing of vegetables, fruit, and flowers and aid in the much needed study of eco-literacy.

A recent study by the Council for Education Facilities International estimated that over $200 billion of school construction and renovation needed to be spent to bring America's 88,000 schools up to health and safety codes. Other outdated buildings need to be replaced with newer facilities. Educational reform requires a functionally supportive environmental system in order to be effective. Clearly, the environment of our schools has not been considered important or contributing to or detracting from the learning experience.

Recently the U.S. General Accounting Office (GAO, 1996), produced a study of America's schools and found many lacking in technology. Forty percent reported that their facilities cannot meet the functional requirements of laboratory science or large group instruction well. Neither do they have enough student storage, display of assessment materials. In New Orleans, Formosan termites have caused deterioration of many of the schools. In other schools roofs leak, windows and walls are rusted, ceilings collapse, ventilation is bad, windows cannot be opened, lead-based wall paint is peeling, raw sewage backs up, bathrooms are unsanitary, and students are unhappy. Some schools have no cafeterias or auditoriums. Most of the landscape design of schools is clearly in need of examination as a support system for not only physical fitness but also for environmental knowing, eco-literacy, and aesthetics. Instead of ugliness and neglect, we need to surround the children of this country with beauty that is commensurate with the priority given to designing and building of malls, office buildings, banks, and stores for adults. This is a challenge in which children can be involved, for after all they are the clients and usually, from the author's experience, the ones with the best design ideas.

The physical environment of our schools does affect learning and behavior. Developmental needs, curricular goals, concepts and principles to be studied can be used by educators and architects as criteria for learning environment design. Instead educational specifications given to architects by educators are made up of pre-determined square footage and activity-setting needs, which, for the 21st century about to begin, are obsolete in concept, function, and meaningful reality.

The large body of theories on the current need for restructuring education, the cognitive development of children, learning and even teaching has largely ignored the extent to which a student's surroundings affect perceptual learning, concept formation, language development, socialization, creative-aesthetic growth, cooperative and team building, attitudes toward schools, and reduction of vandalism and attrition rates in schools.

It is not enough to say that the United States needs more schools. It is not enough to build and construct more schools, especially if they continue to be designed as egg crate cartons with obsolete classrooms positioned off a double-loaded corridor! It is not enough to be concerned about better roofs, windows, doors, walls, HVAC systems, fences and landscaping for schools. It is the way these elements are put togeth-

er in a meaningful and symbolic sense of place and community that is important. The design of the environment as a support system to learning needs investigation. The need for better school design has gone way beyond the days of arguing over whether or not we should have windowless classrooms, or whether temporary portable classrooms are a good solution to ever-changing school populations. Our learning environment needs for the 21st century demand a whole new way of looking at the process of programming and design, one that is not based on past history, but on systems, futurist thinking, and a willingness to push the boundaries of ambiguity.

To accommodate diverse learning styles and teaching strategies such as interdisciplinary and team teaching, schools need updated learning environments that resemble less a classroom and more a hands-on lab or studio. We need technology studios, teaching museums, flexible furniture systems, and landscape designs for learning (learning landscapes). Co-location of community facilities such as libraries saves money and promotes viable learning communities.

Environment Does Affect Learning

It can be safely said that despite the paucity of research on the effects of school design, architectural settings can stimulate or subdue learning, aid creativity or slow mental perception. Recent school restructuring efforts have not, however, addressed the physical learning environment as a support system for education. While trying to improve the quality of education with new curricula, technologies, and teaching/learning strategies, educators and policy makers must not forget the structures and spaces where children go to school. The architecture of indoor and outdoor learning environments, if designed with the curriculum and students' developmental needs as design determinants provides a learning tool that reveals the ideas, laws, and principles from textbooks that we are now trying to teach children. The physics of structure, the geometry of math, eco-system study, the elements of design can all be incorporated into the architecture of a learning environment so that it becomes a three-dimensional textbook or learning tool and not just a vacuous space.

Fritjof Capra, author of *The Web of Life*, (1996) and Orr (1992, 1994) feel that the most important item which can change education in the future is *eco-literacy*. That means that the environment must be a very important learning tool for knowing and understanding nonlinear thinking, patterns and networks in nature, the interdependencies of all things in the universe as well as systems that govern the order in our universe. Because art educators have long been into perceptual sensitivity to the environment, this is no new chore for us. Perhaps the challenge here for art educators is to partner with design educators, architects, ecologists, and others to integrate our discipline into environmental design education and to retrain ourselves to be more interdisciplinary and less geared to the realm of drawing, sculpture, painting, ceramics, and art for art's sake.

Design Education as a Tool for Involving Students in Social Issues

Fifteen years ago, the chief designer for Chrysler Corporation noted that the pool of talented designers in the Untied States was shrinking and that the number of excellent design schools could be counted on one hand. At that time, few students were applying to the Chrysler summer intern program for high school students, and even fewer had any background in industrial design at the high school level. The situation is much the same now. Meanwhile, countries such as Japan, Germany, Italy, and Finland have developed a generation of the world's best product designers and produced some of the most beautifully conceived furniture, automobiles, architecture and electronic products. The world economy is driven by the design of material things; and the emancipation of the Spartan-like iron curtain countries and the growing economies of developing countries will lead to an even greater demand for designed goods. At the same time it is becoming more difficult to understand and compete in the global explosion of information, technology and production. Design education does affect world economics and the environment and the quality of design certainly affects the quality of life. Business leaders are realizing this and are making a case for the arts and design technology to be better included in school curricula (Goodale, 1997).

The American Institute of Architects (AIA, 1991), a national organization of the architectural profession, has since 1966 been involved in elementary and secondary education—working nationwide to help clarify issues and develop methods and materials for raising public consciousness. Beginning in 1980, the AIA stepped up its efforts in primary and secondary education through the development of a multifaceted program, "Learning by Design." This program has been instrumental in providing school-age children with a better understanding of the factors that shape environments—and it has helped teachers develop curricula that sharpen design and perception skills and a design for life!!! Now design education is action research to support the improvement of educational facilities. The author has involved students through design education in the programming and design processes in several schools.

Trout Lake, Washington. In Trout Lake, Washington, one school had not passed a bond issue for 5 years. After students learned architectural drawing conventions, built models of their ideas for a new school, did environmental impact studies on the playground, and had an architectural gallery display, community families passed the bond issue at an indebtedness level of $4.83 per $100 of property assessment. Students took the message home and their parents listened (Taylor, 1995).

Restructuring in Stockton. Another example of how community and student involvement can create a new type of learning environment is taking place in Lincoln Unified School District in Stockton, California. In recent years the district has had 27 different cultural groups and languages spoken. To help meet the needs of these new students, a developer gave the district 40 acres on which to build a new high school and 120 acres along the San Joaquin River delta to use as an environmental study area. Students participated in all phases of planning and worked from a design center set up by the district and supervised by a parent who was a nautical architect. Students even did the site analysis for the architects. It was the students' idea to build a farm

and an environmental study center instead of just another high school. They also conceived a conference center, a business incubation center for students and a fitness center built by a local businessman, used by the students and shared with the community (Wolff, Lang, & Christopher, 1994).

Western Placer Unified School District. In Lincoln, California, students were involved in the design of a master plan for the school district. After about one year of planning, a local developer is giving the district 300 acres for students to grow mandarin oranges. A 1,000-acre conservancy is being planned with a mining company. Students designed a bicycle trail throughout the community to be incorporated into plans for a biking class that would not only be a bike and fitness class but an environmental and eco-study class on wheels. Their drawing and presentation skills impressed this community audience (Concordia, 1997).

Edmonds School District. In Edmonds, Washington, elementary students, after being trained with design techniques, created thoughtful programs and ideas for their schools. Prevalent among the students' ideas were well developed landscape designs for learning called "learning landscapes." They wanted more than playing fields and playscapes. They proposed, through plan view drawings and very sophisticated presentations, gardens, greenhouses, orchards, courtyards, ponds, wetlands, game graphics, and game walls and explained that the design would give them much more to do outside than just stand around at recess.

East Haven, Connecticut. The whole community of East Haven wants better playgrounds for their children. Eight elementary schools are planning the landscape design of their schools with students, parents, and community members. Some parents and teachers never thought of playgrounds as eco-literacy landscapes. The property surrounding the schools is beautiful with woods, wild flowers, trails, and streams but has not been utilized as a learning tool. And in many cases, the streams and woods are polluted with garbage and in one case, a dirt bike just left to rust and rot in a stream. Now students will partake in environmental clean up and be part of a massive design and landscape design program assisted by the school district, the community public works department, and designers.

Architecture and Design Education

Architecture and design education is built on models of representational drawing and creating, rather than on visualization drawing with application to solving real life design problems. For example, students are encouraged to use representational ways of communicating ideas with arrows, circles, bubbles, and lines in "schematic" form as ideas develop. Students in these courses invent new designs or design their own playgrounds, redesign their classrooms and communicate visually with architects and designers in a common language of graphic representation. Children can be taught how to design—to think visually yet representationally, to respond to the plethora of designed items and spaces in their environment and to take responsibility for their surroundings. How can we do this?

The Architectural Programming Process

The architectural programming process enables the planners to identify program elements (not just square footage and dimensions) as educational specifications (or the architectural program), correlate them with academic curriculum content in a "Program for Design," and incorporate the program into the final design for the school building and site. Typically, in a process evolved by this author and Steven Bingler, architect, a large group of over 100 stakeholders is assembled. They meet over time to define student, teacher, and community needs, aesthetic preferences, and spaces required. Design determinants come from an examination of children's developmental needs, likes, dislikes, and ideas about learning as well as concepts from the curriculum content. Community resources available for education are examined and catalogued on a database by stakeholders to lessen the need for duplication of community services by the school district. The following steps summarize the data gathering stages and programming experiences.

1. Identify stakeholders from the school, community and set up a series of meetings where all peoples can dialogue, learn how to think and communicate visually and utilize architectural design tools, identify community resources, bring in businesses and government for presentations, and begin to envision their schools as real community learning centers.
2. Set up a design center in a central location where all stakeholders can see what is going on. Make sure all drawings can be seen from 15 feet away. Give students credit for getting involved in this planning process.
3. Establish mission and goals by examining curriculum and the developmental needs of the target population. (Make sure users are included on the design team.)
4. If there is a site, do a site analysis with students, teachers, community leaders, and collect and analyze all facts, including climate, geography, flora, fauna, community priorities, and information from step one. Students can do an environmental impact study on the site(s) and feed all information to architects.
5. Execute a "treasure hunt" of physical resources in the community and start a database of people, places and things in the local and global community which can be used in the education process.
6. Determine how "things" can be translated into ideas and principles that reflect the order in the universe and can be incorporated into the architecture as learning tools. Even cultural symbolism from culturally diverse groups should be included in designs.
7. Test the concepts—will they work? Sketch them out. What learning implications do they have? How do they reflect the goals?
8. Ask more questions. What other needs does the client have in addition to education? Is anything dispensable? What creative new ideas will support the goals and concepts? What innovative space concepts are available to meet the goals? How can we deviate from old school designs to promote learning environments for the 21st century?
9. Define and solve the problems with design alternatives and concepts.

10. Write lists, draw bubble diagrams of concepts, make and schematic drawings of ideas. Build some study models.
11. Write and illustrate the architectural program which in reality is a comprehensive master plan for the delivery of a community educational process and product.
12. Use the program as a user's guide and the basis for teacher training

The Architectural Design Studio as a Model for American Education

The design education process used in preparing students, community, teachers, administrators, and others to communicate their ideas employs the means and methods of communication learned in the architectural design studio. Art educators can easily facilitate design education practices because they are trained to think visually and can employ visual thinking techniques.. Learning environments are more studio-like and encompass the look of the architectural design studio, with work stations, and adjacent facilities for presentation and portfolio assessment essential to presentations and critiques.

The Design Education Process—A Visual Toolbox for Communication

- Collect data on the site, the surrounds, the community.
- Write an architectural program (as described above).
- Draw bubble diagrams of indoor-outdoor environments.
- Draw a plan view of concepts—Where are windows, walls, doors, landscape design?
- What do elevation drawings look like? (There are four of them.)
- Section drawings can show the inside of items. Practice with halves of green peppers, apples, oranges.
- Try an axonometric drawing of your plan view.
- Perspective drawings are fun to do on computers.
- A study model of various spaces always helps people to understand in three dimensions.

Conclusion

Schools are workplaces for children and teachers—the physical learning environments that support education. If we are to achieve the new visions of education (many of them coming from students) we must remodel current classrooms, design and build new schools and outdoor landscape laboratories, and rethink what "school" means in light of the changes we would like to see.

The architectural programming process is no longer the sole domain of the school board or the administration; collaborative planning is everybody's business and design education empowers all stakeholders to communicate in a new and effective way, borrowed from the architect's design studio. Collaborative planning through design is

everyone's business. This is how an art program can grow into an interdisciplinary architectural program and collaborative design planning that becomes everybody's business for solving a community problem. Design education is the art education of the future and will help all students to make their education "real" because it deals with their physical world.

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About the Author

Anne Taylor is one of the few art educators housed in a School of Architecture and Urban Planning. She is the director of the Institute for Environmental Education which specializes in training teachers, architects, and architecture students in design education. Her architecture students, as service learners in public and private schools, teach K-12 students and teachers how to program, design, and build various projects using math, science, social studies, and art. Taylor is co-author with architect George Vlastos of an integrated curriculum called *Architecture and Children,* which is translated into Japanese and Spanish. She also has spent 30 years developing new kinds of learning environments and researching the effects of them on learning and behavior of occupants. She would like to see more design education used by art educators as a way of getting our talented students into real-world problem solving through design. In the last 2 years Taylor was made an honorary member of the American Institute of Architects and in 1998 was given the Distinguished Professor Award by the Association of Collegial Schools of Architecture.

THE PHYSICAL ENVIRONMENT OF ART CLASSROOMS: A CONTEXT FOR EXPRESSION AND RESPONSE

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A multitude of physical space factors affect both teacher and student perceptions, expectations and behavior patterns in art classrooms. The size, shape, and layout of the room, the types of furniture available, and the locations of fixed and movable features occupy a central position in the educational milieu. While often overlooked by busy teachers, these contextual parts and pieces silently interact with the teacher's values and expectations, the curriculum and assorted educational factors to influence instructional practices and affect the work and behavior patterns of students. Variables that are part of the physical context present an assortment of resources that can be manipulated to optimize the teaching and learning process.

Setting the Stage for Learning

The arrangement of space is one of the major dimensions of the nonverbal communication system that exists in all interpersonal exchanges. Other dimensions of the nonverbal realm include gestures, body language, facial expressions and vocal intonation. As a collection of unspoken cues, behaviors and signals, this silent language operates outside of our conscious awareness and tends to influence the perceptions and reactions of others. A basic tenet of nonverbal communication holds that, when what is seen and heard conflict, people tend to believe what they see. In practice, nonverbal factors are one way teachers indicate to students what to expect and how to behave.

The effects of nonverbal behaviors work in much the same way a stage setting influences individuals who frequent the theater. Playwrights and theater goers know that the script is only the starting point for the total theatrical experience. Without the appropriate sets, costumes and lighting, the event is likely to be boring and a waste of money. The best of intentions and excellent writing may not be enough to prevent its untimely death—on stage, for all to see—if the stage sets fail to support the pre-

sentation. In art education, the lesson plan and the arrangement of space in the art room function in much the same way. And just as a play may require different sets for various scenes, an art room requires different spatial arrangements for the activities taking place (Rosenfeld, 1977).

Just as the scrutiny given a bare stage by the set designer can be expected to yield positive dividends, the potentials of a sound art lesson plan can be best achieved by paying attention to the organization of classroom space. Attention to the physical context presents a complex challenge for busy art teachers. Because art classrooms tend to be dynamic, multi-faceted environments, they tend to shift and change to accommodate constantly emerging needs, interests, and directions. Consider, for example, a printmaking lesson. At various points, students may view a slide show, develop ideas for artwork, do research, prepare plates and paper, pull an edition of prints, do clean-up, participate in a critique, cut mats and write critical commentaries.

Each phase requires making decisions about spatial arrangements that best support the activities taking place. In most cases, the physical layout best suited to holding a critique may be awkward or impractical for students who are doing studio work. In general, no single room arrangement is best for all circumstances. Rather, space should be visualized and planned to reflect how it will be perceived and used by inhabitants.

Environmental Sensitivity

A variety of factors combine to influence how students will react to and use a classroom. For example, by reason of motivation, disposition or an ability to concentrate, some students are able to filter out typical noise, disorder, and commotion. These individuals direct their attention to the task at hand and seem immune to the distractions around them. At home, they can be found working contentedly at a messy desk, often with a television or stereo blaring away in the background. Their ability to focus on the task at hand is unaffected by what some of us would consider to be impossible conditions. Individuals with these traits occupy a position near one end of a continuum that graphs sensitivity to the environment.

Students in a busy or disorderly environment who must struggle to concentrate reside at the opposite side of that scale. This condition may result from such factors as inability to concentrate, health problems, or perhaps because their perceptual apparatus is highly attuned to a variety of factors in their surroundings. Whatever the reason, the same distractions that some of their classmates are able to ignore present these folks with a nearly impossible set of circumstances for doing work. Their potential for frustration is amplified when they are asked to engage in activities for which their interest or motivation is low. For these youngsters, the quality of the physical environment plays a big role in their success in school.

Any given art class will contain students representing various points on both sides of the environmental sensitivity continuum. Thus, an awareness of perception-related factors and thoughtful planning to neutralize their negative effects is vital. Identifying individuals who struggle with environmental distractions can be a major challenge. In most cases, these students should be seated away from doors, aisles,

sinks, and special equipment. These same individuals can also be expected to need extra time to complete assignments and may have to be monitored more closely than other students.

Environmental Aesthetics

When carefully planned to complement the characteristics of a lesson, the aesthetic quality of a classroom can be an asset to instruction; poorly handled, it can result in an impoverished, confusing, or restrictive jumble of features that hamper instruction and diminish student attention to the work at hand. A team of environmental psychologists led by Sommer and Olson (1980) introduced a series of experimental changes to a college classroom. Their approach involved using building materials and simple furnishings to create a pleasing, comfortable, and flexible environment that they termed a "soft" classroom. The changes made included the installation of wooden benches with foam rubber cushions, multicolored carpet patched from commercial remnants, and rheostats on the lights. Decorative items included simple mobiles, green plants and a wooden panel placed in a corner to de-emphasize the room's rectilinear shape. Following the changes, pretest-posttest data showed that student ratings of the aesthetic quality of the room were more favorable and frequencies of student participation increased.

To understand how environmental quality affects performance, consider the classroom as a setting with potential for creating reactions in students—much like the arousal mechanism associated with the aesthetic response one experiences when encountering a work of art. Just as an engaging piece evokes a rise in our arousal level, the opposite occurs with mundane work.

A similar process of ups and downs also occurs in response to the arousal provoked by classrooms. As the sense organs and central nervous system collect and process information about various stimuli, the musculature increases its readiness to act. Low levels of arousal are characterized by boredom, sleepiness and lethargy. Extremely high levels of arousal, especially when endured over a prolonged period of time, are accompanied by mild discomfort and a desire for a more comfortable state. In both cases, a return to the equilibrium state is desired (Berlyne, 1968).

In some cases, discomfort, uneasiness or anxiety are provoked by excessive disorder, complexity or novelty in the environment. During art lessons, the level of arousal needed for a given task tends to be highest as students begin a new activity or project. As their involvement and understanding of the activity increases and attention is drawn to the task at hand, the need for external stimulation is lessened. An awareness of factors related to environmental arousal can serve as tools for regulating the arousal level of a room setting.

Licata and Wildes (1980) discussed how the environment transmits impressions to inhabitants. They studied a series of classrooms for the presence of arousal factors that affected the performance of inhabitants. Since many classroom are predictable, patterned and repetitive settings, they tend to be perceived as being less stimulating or interesting than other settings. Art teachers have many opportunities to offset these negative factors. For example, sub-settings for individual inquiry and research, self-

instruction centers with art-related books and magazines, a center for academic games and a station with materials for reviewing historical or critical work can be created. The notion of an arousing classroom can be useful for developing a dynamic environment that also serves to prevent inappropriate behaviors.

Eye Contact and Distance

Eye contact plays a major role in interpersonal exchanges and should represent a major consideration when making spatial arrangement decisions. As a key link in the communication process, eye contact helps listeners understand the speaker. When talking, a speaker instinctively glances at the eyes and facial features of listeners to get reactions to what has just been said. This nonverbal feedback helps the speaker decide whether to keep going, to slow down, to back up or to choose other words. Humans have been conditioned to read the information contained in furrowed brows or glazed-over stares and subconsciously adjust what they are saying in reaction to those nonverbal clues. Speakers seated or standing close to listeners can easily make eye contact and tap into these two-way exchanges (Argyle & Dean, 1965).

Research Findings

According to researchers, students seated near the front of the room tend to pay more attention and engage more often in task-related behavior than their counterparts in the back of the room. Whether this phenomenon is due to seat location itself or to self-selection on the part of students is unclear (Schwebel & Cherlin, 1972). Weinstein (1979) reported that the only physical space variable associated with differences in academic achievement is seating location.

The outcomes of studies by Prescott (1987), Weinstein (1977) and Kritchevsky, Prescott, and Walling (1977) show that changes in spatial arrangements and patterns for organizing and distributing supplies are associated with changes in student behavior. These changes to the arranged environment influence such factors as attention span, the use of materials and time spent with materials.

In a summary of the research on the physical design of classrooms, Doyle (1986) concluded that the amount of time teachers spend organizing and directing students, interacting with different individuals, and dealing with inappropriate and disruptive behavior is related to the type of activity at hand and the arrangement of the physical setting. The studies he reviewed suggest that the greater the amount of student choice and mobility in the classroom and the greater the complexity of the social scene, the greater the need for overt managing and controlling actions by teachers.

While the environmental organization of any classroom plays a secondary role to the curriculum, evidence continues to mount showing that many variables in the physical setting influence behavior. How space is arranged, the seating locations of students and the aesthetic quality of the setting are factors that appear to have an impact on how efficiently students work and behave (Weinstein, 1979).

Much like creating a work of art, the layout of a classroom for a given function will most likely result from a process of trial and error. Every teacher develops personal

preferences for organizing classroom space. Most display a tendency to concentrate their time in the front-center zone, an area which affords quick access to the chalkboard (whether used or not), their desk and the entrance to the room. Students respond to these patterns of teacher behavior by seating themselves around the teacher zone, some in-close, others in more distant areas. This results in a sometimes uneven use of the available space (Rivlin & Rothenberg, 1976).

Studies of Effective Teachers

Arlin (1979) and Evertson and Emmer (1982) studied the practices of teachers deemed effective by their colleagues. As part of their research, the physical environment characteristics of their classrooms received careful scrutiny. The researchers discovered that the teachers:

1. Organized room layouts into distinct areas or zones according to the activities or functions taking place. Lessons were planned with attention to the amount of space needed by students to work efficiently. Tools and materials were grouped by media. Accommodations for students who preferred standing while working or for those who spread their work across a table while working were considered. When clean-up was required, the proximity of students to sinks and storage areas was carefully planned.
2. Created specialized work stations for specific tasks. This practice enabled the teacher to monitor different activities that were occurring simultaneously. For example, while plaster carvers were at work in one area, students across the room were drawing a still life with charcoal. The tools and materials that would be needed by students working in each area were placed on a nearby counter or table. When several functions were being performed simultaneously, the organizational goal was the least restrictive layout for each activity taking place.
3. Designed the basic floor plan, including traffic flow around storage areas and sinks, before the start of the school year. In the first week of the academic year and in the first few weeks that followed, routine procedures were reviewed and critiqued frequently and expectations for work-related behaviors were discussed.
4. Arranged desks and seating locations so visits by the teacher could be easily made. Students knew where they were supposed to be, what they should be doing and what materials were needed.

In general, the managerial and instructional practices of the teachers studied reflected concern for environmental details that emphasize an orderly, predictable, and purposeful work setting. They attempted to maximize the amount of time students spent engaged in task-related activities while limiting the amount of time they spent milling around the room.

Concepts for Planning and Arranging Environments

When considering the arrangement of supportive physical settings for art education activities, consider that:

1. Environmental arrangements send potent nonverbal signals to occupants about what to expect and how to behave. For example, when students enter a classroom and see chairs lined up in front of a white screen, their expectations tend to become geared to sitting, looking straight ahead, and watching what is projected onto the screen. An awareness of the nonverbal information communicated by spatial arrangements can be a helpful tool for teachers as they guide students from one lesson or activity to another.
2. Although the organization of classroom space represents an aspect of teaching that includes no academic content, its role as the context for learning activities must be well planned. As such, setting arrangements should receive the same attention in the overall instructional picture as demonstrations, outside assignments, and evaluation.
3. Art rooms function as active learning environments where students have direct access to materials as they do research, participate in group learning, and manipulate a variety of materials. To support this wide range of activities, art teachers must make certain that adequate amounts of space for movement and work are available. A reasonable goal in organizing the classroom would be the creation of spatial arrangements that minimize intrusions into individual students' work spaces while reducing the potential for conflict and interruption.
4. The design and organization of the physical setting must function in unison with the developmental levels of students and the nature of the lesson activities taking place. In industry, human factors engineers study the repetitive patterns associated with particular jobs so they can create an ideal set of conditions for performing tasks. Their goal is to optimize worker efficiency, safety, and comfort while minimizing fatigue and boredom. They use the word "ergonomics" to describe designs developed to address the adaptation of an individual to the physical requirements of a particular task or activity (McCormick, 1976).

To develop efficient and effective physical settings, art teachers can study the relationships among such factors as the placement of tools and materials, the frequency and duration of interruptions, procedures for obtaining supplies and the time students need to resume work after being away from their seats. Focus on the task at hand can be sustained when needed materials are nearby. Art teachers can apply the concept of ergonomic design in their classrooms just as human factors engineers analyze the operations and preferences of workers to determine which conditions most positively affect performance and efficiency (Loughlin, 1992).

The principles associated with displaying and distributing materials in art classrooms also resemble those applied in retail merchandising. For example, in art classrooms, students make choices within lessons, design and redesign projects, and initiate learning activities as a regular part of the academic program. Thus, attention to the visual clarity of tools and materials and their inherent qualities can enable students to best understand what is available and how it can be used. Materials shown at eye level and those displayed on the ends of shelf units or storage units tend to be selected more often than those out of easy vision range. Carefully displayed materials are

more likely to be spontaneously selected than materials that are inconspicuously stored. Effective display stimulates curiosity and encourages experimentation by showing how different materials might be combined (Green, 1986).

Comparing Spatial Arrangement Models

To decide what spatial arrangement model to use and when, several interrelated factors must be considered. The variables include the mode of instruction to be used (e.g., lecture, discussion, demonstration), the types of student work, and attending behaviors expected (e.g., small groups activity, sit and listen, individual work), the furniture available (tables, desks, benches), and the fixed features of the basic room architecture. Consider the following ideas:

1. The row-and-column (sometimes called "theater-style") works well for lectures, showing slides or films and other modes of instruction in which the teacher uses one-way communication from the front of the room. Students seated at individual desks and facing a certain direction are nonverbally signaled to look straight ahead and listen. Talking to others is subtly discouraged. When audience members arranged in this pattern are invited to participate and students are able to select their own seating location, there tends to be more involvement from individuals who are seated directly in front of the instructor than from those seated at either side or in the rear of the room. The teacher is well positioned to monitor behaviors because of the command position he or she occupies in front of the room.
2. When students are doing studio work, chairs, desks, and tables can be arranged so that all individuals have ample space in front of them to spread out materials. In some cases, student desks may be pushed against walls to create open spaces and relieve congestion. Aisles and walkways should be kept clear so students can move about to replenish supplies, obtain tools, or visit the sink area without having to make others move. In this more open arrangement, the teacher is able to circulate around the room and visit every student for a one-on-one contact. Procedures can be developed to prevent congestion and noise around busy areas. Monitoring can be more difficult for the teacher in this more open arrangement because some students may be blocked by easels or drawing benches.
3. During small group activities, clustering student seating at desks or tables can facilitate the pursuit of lesson goals. In this way, materials can be shared or individuals can work together as teams. In this cluster arrangement, monitoring can be somewhat difficult. Feitler, Weiner, and Blumberg (1970) reported that the cluster arrangement appears to be a design poorly suited for control of student behaviors. Of the many basic room arrangement options presented to a group of teachers, this plan was least preferred because of the behavior management problems it presented.
4. When holding discussions and for exchanges involving students and the teacher, horseshoe or circular arrangements work well. The keys to effective interactions in larger groups are physical proximity among participants and the opportunity

for members to make eye contact while talking. Students seated at great distances from the teacher or out of the teacher's line of sight are less likely to be involved in these interactions.

5. For demonstrations and some types of discussions, gathering students around a carefully selected table or bench can easily direct their attention while creating a situation where students are physically close to the teacher. Some class members can be seated and others can be expected to stand for a short period of time. While moving to the demonstration table, they can be guided into position, much like a choir director arranges singers for a performance. Care should be taken to locate all students so they can easily see the presentation and so they can be seen by the teacher. Standing students behind the teacher should be avoided because these individuals are difficult to monitor and there is little opportunity for making eye contact with them. A close-in gathering of students can also be effective for lesson introductions and critiques. The teacher can show examples and present new ideas in this comfortable and non-threatening arrangement. Because this approach to organizing space involves moving students, not furniture, it can be done quickly and quietly.

To facilitate efficient changes in furniture arrangements, consider the use of a marking system. For example, by aligning colored tape marks on the floor and tables or desks, students can quickly slide tables or benches to locations deemed best for particular instructional modes. Initially, the process of changing room layouts may result in elevated noise levels. As the novelty wears off and students adjust to the routine, moving furniture will become just another aspect of the art program.

Conclusion

While various ideas for understanding and manipulating the physical environment of classrooms have been discussed and suggestions for using them are offered, simple, fool-proof formulas are unavailable. Rather, art teachers are urged to become knowledgeable about the environmental characteristics of their classrooms and to experiment with ways the many variables available can be manipulated to enhance the teaching and learning process. For inventive and imaginative art teachers, the goal of achieving congruence among instructional objectives, teaching techniques and environmental arrangements seems like a reasonable challenge.

Many issues related to the physical environment await thoughtful and systematic examination. As research continues, we will learn more about the types of art room arrangements that affect participation, time on task, and other factors associated with student involvement and learning. Information about specific setting variables will enable art teachers to create room spaces that accommodate their instructional preferences and student needs. And, while we may suspect that the aesthetic quality of a classroom interacts with artistic expression and response, specific guidelines for maximizing the choices available await study.

In the final analysis, the most effective practices for arranging supportive learning environments will involve making informed decisions about myriad social and

instructional factors. In most cases, what any art teacher does about room arrangements will result from a combination of personal preferences, experience, and an awareness of how environments affect student behavior. When thoughtfully developed, the physical environment can be a positive force for growth and achievement.

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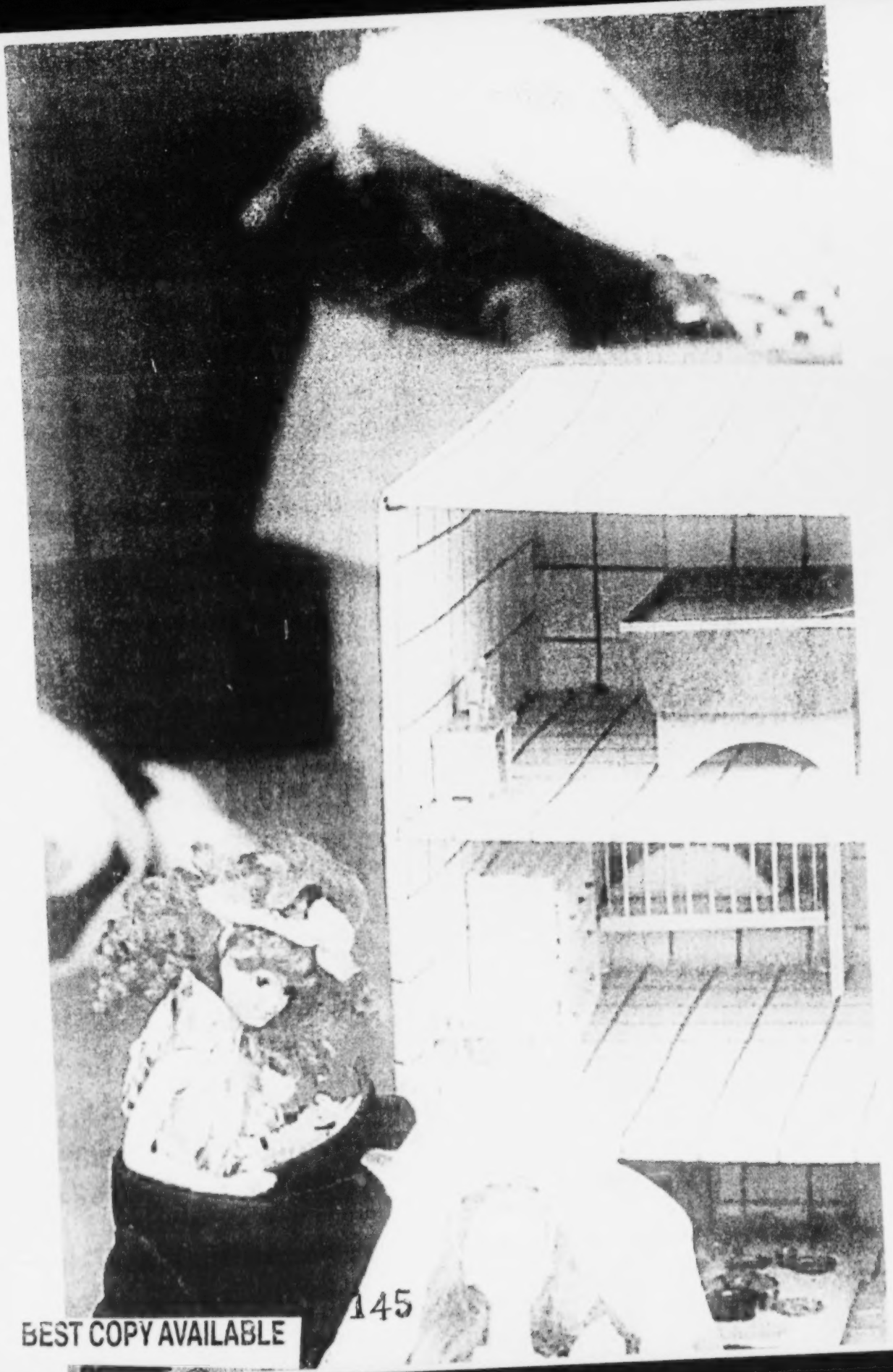

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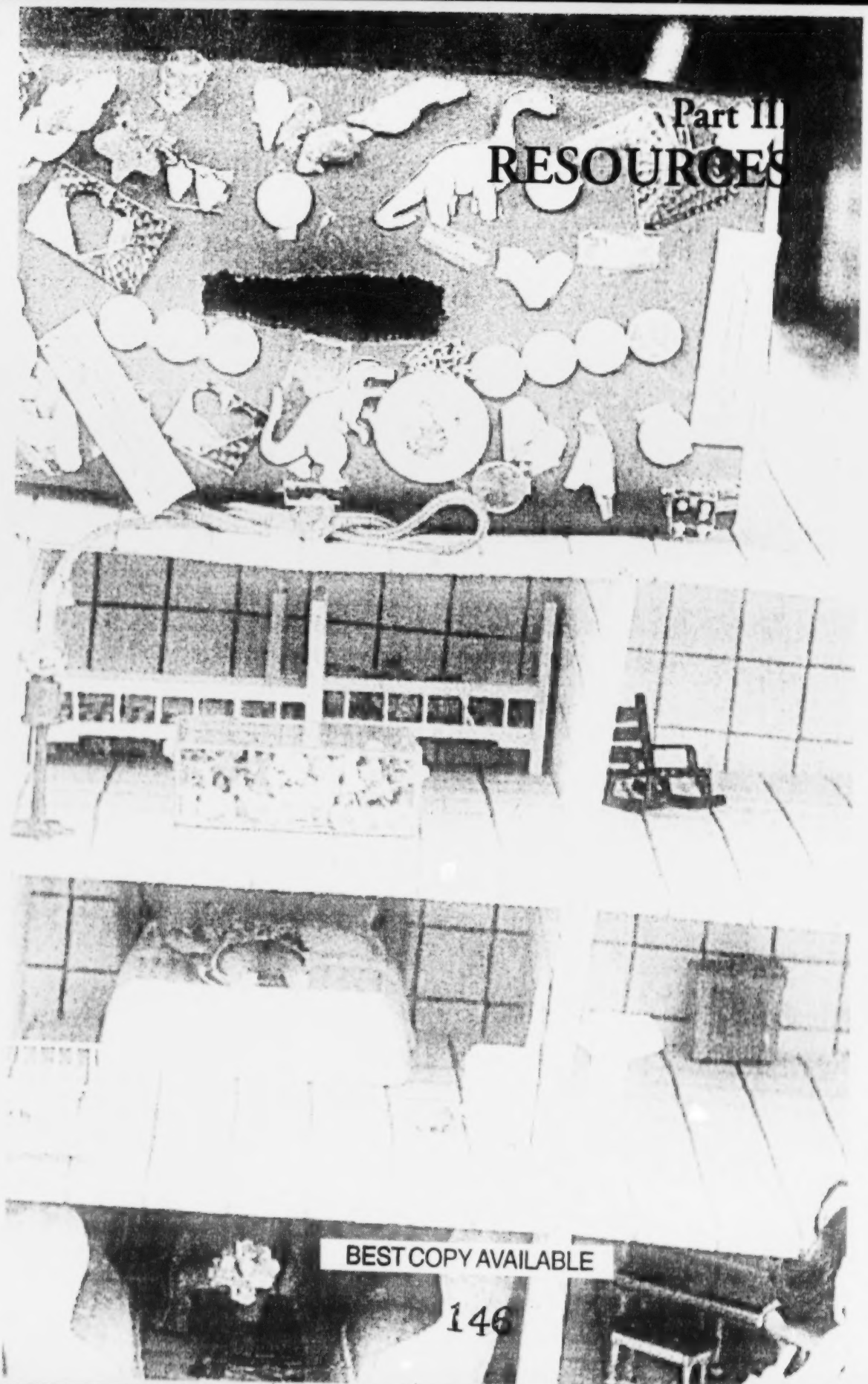

Part II
RESOURCES

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A PLACE IN THE WORLD: ADULTS' MEMORIES OF CHILDHOOD'S SPECIAL PLACES

David Sobel
Antioch/New England Graduate School

Qualitative research with children and adults in numerous cultures seems to suggest a predisposition to creating special places (e.g., dens, forts, playhouses) during middle childhood. Using extensive interviews and written recollections, I present the attributes of special places, their meaning for their creators, and the role the creation of special places plays in the evolution of the self. A few curricular extensions for elementary school age children are suggested.

Alex led the way down the bank and into a dark tunnel through the brambles. "Cat's Alley," he murmured back at me. "We call it that because in the summer, only cats can make it through here." On my hands and knees, I scrambled along the passageway and found Alex sitting with his legs crossed, next to an abandoned 55-gallon drum. "My secret den," he whispered, "no one knows about this place, even my brother." We huddled in a little dome-shaped clearing he had carved out of the thicket.

This scene, in brambly woods on a misty November afternoon, occurred during my year-long study of children's landscapes. Whether exploring in the meadows and moors of Devon, England, or in the scrub thickets of Carriacou, a small Caribbean island, I often found myself being led to secret places by children.

Finding and making special places in the landscape appear to be a common experience for children of all cultures. In the United States, I have found "forts" in the backyards of New England, on the banks of Florida's Suwannee River, in the urban woodlands of Washington, DC's Rock Creek Park, and in the dry canyons of expensive Los Angeles suburbs. It was further confirmation to see these interests in children in England and Carriacou. In Devon, children talked about "dens," often sculptured tunnels in hedgerows or places constructed of scavenged materials (see Figure 1). In Carriacou, children constructed playhouses from discarded scrap materials under shady trees and "bushhouses" out in the scrub acacia backcountry (see Figure 2).

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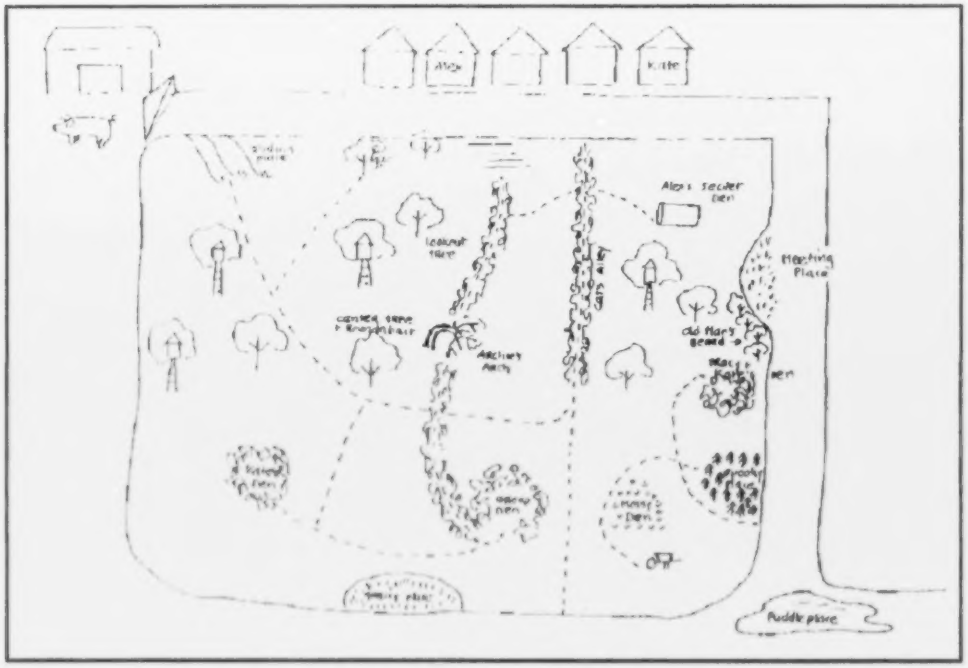
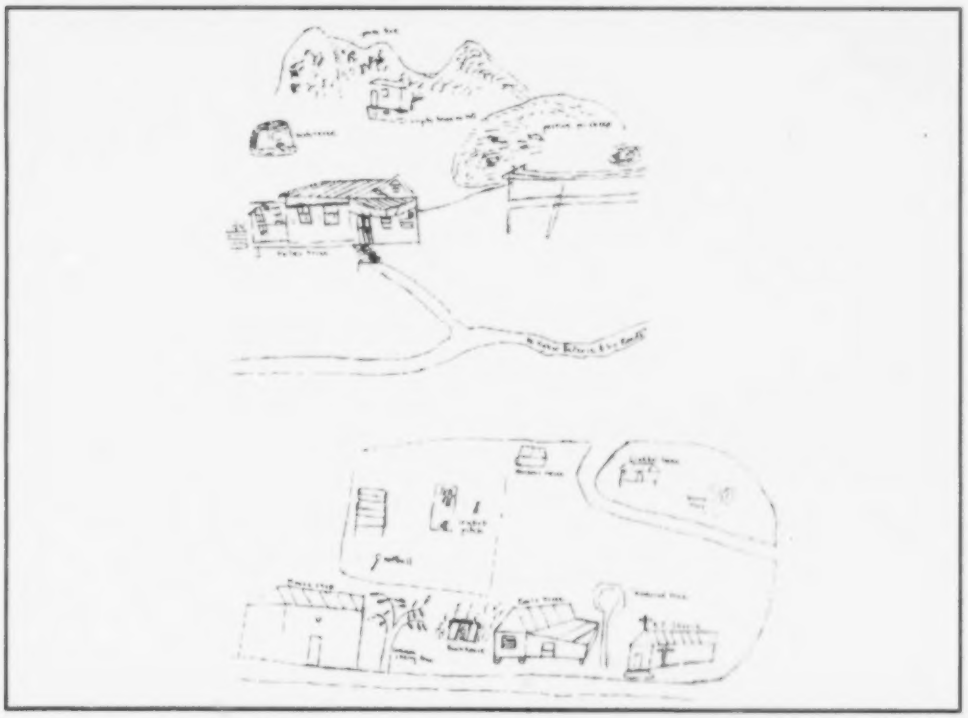


Figure 1—A composite map of the woods at Canada Hill, Ogwell, Devon, England, including excerpts from two children's maps and sites shown to the interviewer during field trips. Note the numerous private and group dens constructed by the children and their friends.

Figure 2—below—Excerpts from children's maps of their villages in Carriacou, Grenada. Note the depiction of "bushhouses" constructed by the boys. Many 8- to 11-year olds created similar structures on a regular basis.



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My work with children in Devon and Carriacou is detailed in a longer monograph (Sobel, 1989) in which I described my research with children, reviewed special-places literature, reflected on place making from a Jungian perspective, examined adults' memories of special places, and described elementary curricula that capitalize on this inherent tendency. Here, I focus on adults' memories of special places and extract from these the attributes and significance of special places in middle-childhood development.

Homage to Edith Cobb

In "The Ecology of Imagination in Childhood," Edith Cobb (1959) pointed to middle childhood (ages 5 or 6 to 11 or 12) as a unique stage in development for the fostering of the relationship between the person and the natural world. Although Cobb's claims of the "universality" of the experiences she described have been questioned (Chawla, 1986), they still provide fertile ground for speculation. At the heart is an argument for middle childhood being a "critical period" for the person to bond with and shape the natural world (Pearce, 1977).

From her extensive observations of and psychological testing with children, Cobb claimed:

> I became acutely aware that what a child wanted to do most of all was to *make a world in which to find a place to discover a self.* This ordering reverses the general position that self-exploration produces a knowledge of the world. Furthermore, while observing the passionate world-making behavior of the child when he is given plastic materials and working dimensions which are manageable and in proportion to his need...I have been made keenly aware of those processes which the genius in particular in later life seeks to recall.

Cobb suggested that it is crucial for children to participate in world-making or world-shaping activities. Children need the opportunity to create and manipulate, within prescribed limits, small worlds. The creation of these worlds from plastic materials (shapeable, open-ended materials like dirt, wood, clay, or Legos) gives children the opportunity to organize a world and then find places within it in which to become themselves. The following memory of dollhouse play serves to illustrate the power of this kind of self-contained shapeable world.

Rosanne McCarthy, age 38, recalled playing with a dollhouse in a cousin's house when she was 6:

> "There it is!" It's always as beautiful as I imagine. Inside there are pictures on the wall, chandeliers that light, tiny furniture with drawers that open...Tiny shadows are thrown on the floor and the walls. The furniture is so delicate that I'm afraid of breaking it. Just touching it gives me shivers. But I want to touch it, change it, rearrange the furniture.

> It's my world to change any way I like, to manipulate to whatever plot I want. I'm speaking aloud quietly to myself. I'm there winding down the stairs, going from room to room, arranging things so they are pleasing to me. I'm insulated from the adults upstairs, from the whole world for that matter. (McCarthy, 1987)

Clearly, being master of the dollhouse was a powerful experience for this child. As Cobb suggested, dollhouses "have working dimensions which are manageable and are in proportion" to this girl's needs. The confined space and scope allowed the girl to protect herself into this world and make it her own. She became the author of her own experience. Thus, small-world experience in childhood roughs in the ego's early sense of being able to shape the world; it is the groundwork for taking an active role later in life.

This reflection brings us to a crucial element of Cobb's work. One of the unusual contributions of her work is her survey of the autobiographies of geniuses. Cobb contended that the gift of genius was somehow related to the ability, in adulthood, to cast back and recapture the experience of creating small worlds:

> In my collection of some three hundred volumes of autobiographical recollections of their own childhood by creative thinkers from many cultures and eras, it is principally to this middle-age range in their early life that these writers say they return in memory in order to renew the power and impulse to create at its very source, a source which they describe as the experience of emerging not only into the light of consciousness but into a living sense of a dynamic relationship with the outer world.

In these moments, children have the experience of being simultaneously immersed in and separate from the environment. Cobb suggested that adults with great creative capacity often return to the memories of childhood experiences to get their creative juices flowing or to rediscover a way of thinking/feeling—peculiar to childhood—in order to help them think creatively about a present problem. My findings, from interviewing adults, suggest that this is true and that special childhood places hold meaning throughout some adults' lives. Special places become places of repose and sureness to return to—in actuality and in the mind's eye.

Adult Memories

A fascinating study of religious experience in childhood provides a thought-provoking starting point for these reflections. Edward Robinson (1983), in *The Original Vision: A Study of the Religious Experience*, presented remembrances of life-changing experiences solicited randomly from adults throughout the British Isles. In his analysis of this study, he contended that, contrary to our assumption that religious experience begins in adolescence, many 3- to 12-year-olds have moving religious experiences that they are unable to describe until much later in their lives. In defending the

validity of these remembrances from criticism that the memories have been shaped by later adult experience, Robinson wrote:

> Childhood can not be fully understood simply by the observation of children. Quite apart from the difficulties of communication in the pre-adolescent years, there is often a dimension to our early experiences that we can only become fully conscious of (if at all) in later life, when we compare them with other forms of experience that lack that dimension; in childhood we may be wiser than we know.

Robinson shared his respondents' remarkable accounts of transcendent experiences in the natural world. A 57-year-old woman, for example, reflected on a particularly numinous experience she had had when she was 5 years old:

> The vision (of being "part of the living tissue of life itself") has never left me. It is as clear today as fifty years ago, and with the same intense feeling of love of the world and the certainty of ultimate good...The whole of this experience has ever since formed a kind of reservoir of strength fed from an unseen source...Of course, at the early age of four or five I could not have expressed anything of the experience in the words I have now used, and perhaps the attempt to convey the absorption of myself into the whole...But the point is that, by whatever mysterious perception, the whole impression and its total meaning were apprehended in a single instant.

Similarly, I have found that adult recollections of favorite childhood places have the same effect. Although the experience could not be articulated at the time, the adults recollection of the place suggests that these places play a uniquely powerful role in the shaping of the self.

Escape Behind the Billboards: Memories of Forts in Urban and Rural Settings

Numerous examples of forts and special places can be found among children living in rural areas. The access to open space and parents' greater sense of safety provide children with the protection and freedom they need in order to feel comfortable to explore and create places. I have found, however, that children's drive to create private spaces is so deep that many urban children find opportunities despite obstacles. In Devon, I found that small and innocuous spaces can meet children's needs. My wife, as a 10- or 11-year-old growing up in Santa Monica, played Robinson Crusoe on the dry canyon bottoms that sliced through urban and suburban developments. Urban children are skilled at discovering interstitial spaces—the spaces between areas with designated functions. Certainly city parks are extremely valuable, but culverts, alleys, basements, abandoned warehouses, railroad right-of-ways, and hedges are utilized.

From the many adult recollections I have collected, I present urban, suburban, and rural examples. The accounts are excerpted from questionnaires and papers from Education and Environmental Studies graduate students in my courses at Antioch/New England Graduate School. Although this sample is not broadly representative, my interviews with children and adults in New England, England, and Carriacou suggest very similar patterns. My intent is to show how the place-making impulse exerts itself in "nonnatural settings" and how the experience is similar regardless of the qualities of the environment. These accounts also show how the memories of these childhood experiences have shaped these individuals' ways of being in the adult world.

Bonnie Baron, age 28, recalled a special place she experienced in urban New Jersey at ages 8 and 9:

> Walking along the sidewalks, cluttered with broken toys, bikes and baby carriages, there was always a feeling of anticipation in our chests when we had our special destination in mind. Weighted down by our bouncing, gurgling canteens, we would soon cross the street and proceed down the long, uneven alleyway, always gathering a stone or two in our sneakers.
>
> Now our eyes focused on the two, slanted billboards ahead. We never noticed what was posted on their fronts as we chose to remain behind them in our world of gray privacy. Was there a sidewalk and a street on the other side? I suppose so. But we were content staying behind the billboards and being shielded from the noise, traffic and clamor that hurriedly passed by.
>
> Phew! we were finally there. The cool shade dried the sweat from our foreheads. Had anyone discovered our secret places while we were away? No. Everything seemed in place as we had left it. "Let's get the flag out," I whispered to Ann. We always spoke quietly in case someone might be listening from across the traffic-laden street. Uncovering the flag and securing it to the ground made our presence seem officially declared.
>
> We were busy from the moment we arrived. We made cabinets as painstakingly as master carpenters with two slaps [slabs] of uneven discarded wood. A perfect display area for our utensils of sticks, rocks and branches. Digging holes for hiding special treasures occupied much of our time even though we used our stick and rock tools with precision and speed. Also, we were mathematicians of the highest degree with twigs for calculating the number of trucks that rolled by. (Baron, 1980)

Suburban areas are sometimes more lacking in appropriate play spaces than urban areas due to the paucity of interstitial space. Because expansive housing developments are completely planned, no undefined areas are left in which children can mess around with natural materials. In the face of this homogenized environment, subur-

ban children often need to turn inward to find a suitable place to call their own. Nancy Segreto, 30, described her solution:

> In a dark corner of the basement, where we hardly ever played, there was a small black opening high up in the wall. At around the age of eight, I heard my mother call it the "crawlspace", and I became intrigued with this enigma in the wall.
>
> When I crawled inside, it was as if I had discovered a secret trap door leading to a mysterious place. I spent days cleaning the room and seventeen full vacuum bags later the space was ready to furnish. I found an old rug in the corner and laid it out along with all the pillows I could find. I brought all my special things inside: my first doll, my matchbox cars, special rocks and shell. I brought a record player inside and put up a curtain at the entrance.
>
> Shortly after discovering this place it became apparent that it needed a name. "I am going to the crawlspace" just didn't cut it. It became "The Hole" and was a place to play alone or with a friend. When we were inside it was as if we stopped existing in our parents' world. We were "unaccountable." Whatever happened inside "The Hole" no one else would know. The place felt very safe, like a bomb shelter and exciting, like another planet.

> At age eleven there was a shift in the function of "The Hole" and the name changed to "The Whole." The focus of activity became primarily social. It was a place to hide friends who were running away or a place to listen to top 40 songs while a black light lit up music posters. It was a place to talk about who liked who or try smoking pot for the first time. As we got older, we frequented "The Whole" less and less and I hardly noticed the transition. (Segreto, 1989)

Note the "The Hole" underwent a significant transition around adolescence and was gradually abandoned. Despite this transition, however, Nancy described her later attitudes about this space:

> The crawlspace was my first "apartment" away from home. Each time I move to a new place that appears run down and dirty, I imagine how nice I could make it, how special its features are. I associate feelings of strength, independence and free will with this place. It was nothing before I discovered it.

Cathy Sprague, also age 30, remembered living in a rural area in Massachusetts when she was 6. Her memories highlight both the sense of privacy and the empowering quality of making a private space.

> When I was little and living in the Berkshires, the snow fell deep in the winters. I built myself a fort one winter by digging straight into the snow and hollowing out a coffin shaped ditch. There were other forts, indoors and some secluded spots

> under hanging tree branches that I went to with friends. My snow fort is the one I remember best.
>
> My fort seemed unique because no one I knew had ever built one like it. It was deep enough into the snow that, when I lay in it on my back, the steep walls blocked out most of the tops of the nearby trees and the roof of the house.
>
> I liked to go there because it was my special place. I imagined I couldn't be found. In my fantasies, the footprints leading to it, and the snow I had piled up around the edges as I dug, disappeared. Anyone would have to look very hard to find it. I felt alone and warm and safe. I was fascinated that the snow would keep me so warm. I thought of it as a room I had built for myself. Inside, I dug out little cubby holes in the sides for my mittens and stuff. (Sprague, 1988)

In reflecting on this memory, Sprague wrote:

> I have thought about this fort over the last year, as I have been working through some dependencies in my adult life. My association with this place is one of it being the first independent action I can ever remember taking. The first time I went there, when I built it, my mother was angry with me because she couldn't find me. This was surprising to me; it was news that I could do something all by myself, for myself, the would affect someone else. Her anger didn't diminish my good feelings about the place. I think, in a way, it deepened them, made the place more mine. There was a feeling of success.

These descriptions serve to highlight the important qualities of the special-place experience as illustrated by adults' memories. From the more than 100 adults and 200 children interviewed, I extracted a list of attributes of special places. These attributes were identified by extracting recurrent descriptions from the accounts of special places:

1. Special places are *found or constructed by children on their own.* It is wonderful for parents to provide playhouses and build treehouses, but it is important that children have the opportunity and freedom to find and make places outside the parental purview.
2. Special places are *secret.* Children do not want other people to know where they are, and they do not want to be found once that are inside. Not being seen is very important.
3. Special places are *owned by their creators.* The flag-raising ceremony recalled by Bonnie Baron is illustrative of the patriotism and commitment she and her friends had felt about their scrap of earth.
4. Special places are *safe.* A feeling of calm and repose comes over children when they are in their special places. There is often a reflective or meditatively quiet aspect to being in their special places. Bonnie said about her place, "Feeling the cool dirt beneath us sent a calming effect throughout our bodies."

5. Special places are *organized worlds.* Children love creating organized interior spaces suitable for storage of personal objects. Some children even create complex utility systems—simple plumbing and electricity really make a fort cool. Children like the process of building a small world from scratch, of transforming natural or found materials into systems.
6. Special places *empower their builders.* Making a special place is one of the first significant, personal acts that children hearken back to. Making and having a special place means that you are someone special.

Almost all verbal recollections by adults of special places have a kind of breathless, twinkle-in-the-eye animation. It is thrilling for an adult to revisit one of these places in the mind's eye. The adults re-experiences the explorer's feeling of claiming a piece of the world, being the first on the scene, carving a civilized place out of the wilderness. The fort, or the special place, is a concrete manifestation of the abstract sense of self born in adolescence. The person makes a literal place in the world during childhood, preparatory to making a figurative place in the world during adolescence and adulthood.

Evolving A Sense of Place

The notion of sense of place has emerged strongly in the past decade among environmentalists. In *A Sense of Place: The Artist and the American Land,* Gussow (1972) defined place as "a piece of the environment that has been claimed by feelings. We are homesick for places...and the catalyst that converts any physical location into a place is the process of experiencing deeply." To experience a place deeply is to bond with a place.

The roots of the adult notion of a sense of place are established during middle childhood. Rachel Carson's "sense of wonder" of early childhood gets transmuted in middle childhood into a "sense of exploration." Children leave the security of home behind and set out, like Alice in Wonderland and Columbus to discover the new world. In the process, children create new homes, homes away from home. These homes become the new safe places, small worlds created from the raw materials of the natural world and their flexible imaginations. These new homes in the wild, and the journeys of discovery, are the basis for bonding with the natural world. As we bonded with our parents in the early years, we bond with Mother Earth in middle childhood.

The significant world, the world with which we bond, expands outward as we grow older. The infant's world is the enclosed space between its mother's arms. The world then becomes the house, the neighborhood, the community, the bio-region, the nation, and, perhaps, the planet. Through the successive stages of human development, we maintain our old relationships but move outward to bond with new spheres of significance. If this process is to continue to expand, then each bonding must occur in sequence. Feeling a sense of place in adulthood leads to a commitment to preserve the integrity of the communities in which we live. Developing this sense of place depends on the previous bonding of the child with the close natural world during middle childhood. The sense of place is born in children's special places.

Education in harmony with development should, among other things, create adults with a sense of individual initiative and a sense of responsibility to the natural and social worlds. How do we accomplish this? One way we can help is to acknowledge, in our education, the world-making tendencies of the individual. During middle childhood, this means allowing the child to find and create private worlds. A few schools have created programs with this goal.

A rural New Hampshire first-grade teacher created an Explorers Club that meets Wednesday afternoons. As a base of explorations, the children created a fort, and then each child found his or her own special spot in the vicinity of the fort. During winter, the children created indoor forts and, eventually, miniature models of forts. Remembering the year, the teacher said, "We would just go up into the woods, the children would go off to their special spots, and things would start to happen. They seemed so placid and calm and self-directed when we were there" (Figure 3).

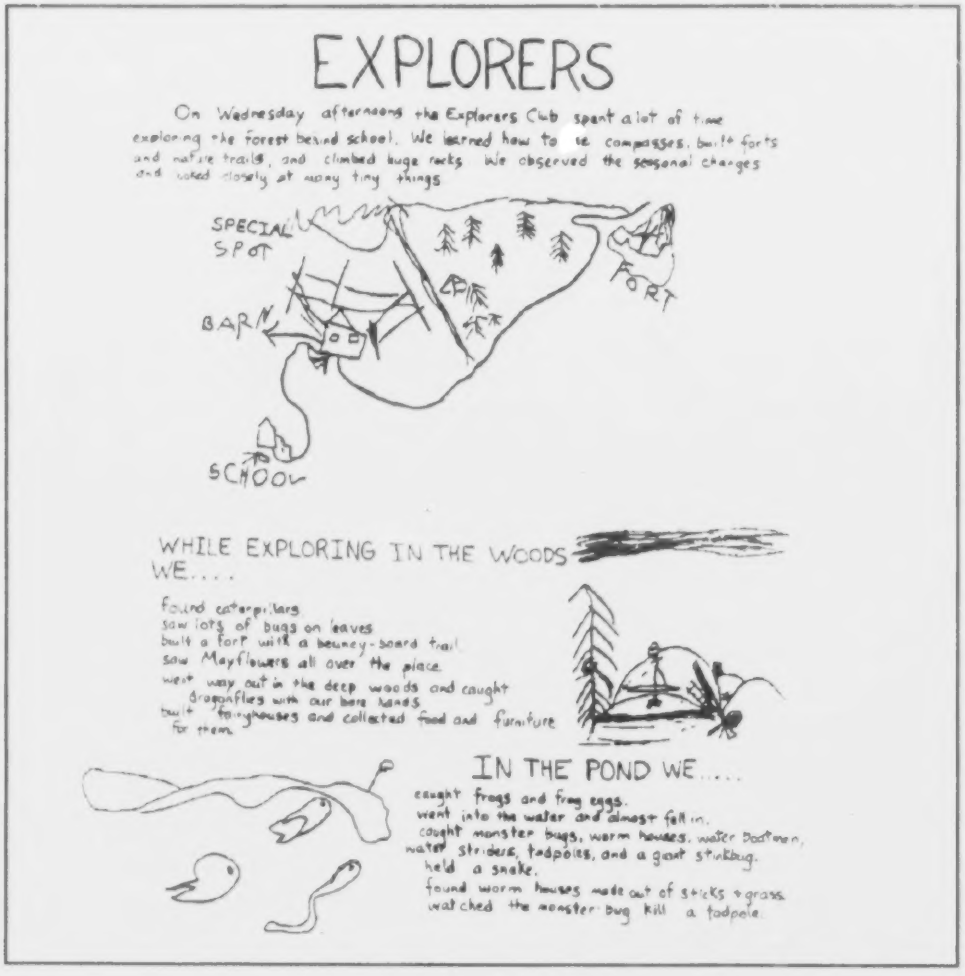
EXPLORERS
On Wednesday afternoons the Explorers Club spent a lot of time exploring the forest behind school. We learned how to use compasses, built forts and nature trails, and climbed huge rocks. We observed the seasonal changes and looked closely at many tiny things.
SPECIAL SPOT
FORT
BARN
SCHOOL
WHILE EXPLORING IN THE WOODS WE....
found caterpillars
saw lots of bugs on leaves
built a fort with a bouncy-board trail
saw Mayflowers all over the place
went way out in the deep woods and caught dragonflies with our bare hands
built toy houses and collected food and furniture for them
IN THE POND WE....
caught frogs and frog eggs.
went into the water and almost fell in.
caught monster bugs, worm houses, water boatmen, water striders, tadpoles, and a giant stinkbug.
held a snake.
found worm houses made out of sticks & grass.
watched the monster bug kill a tadpole.

Figure 3
From the Harrisville, New Hampshire, school yearbook—a collection of children's work with their teacher's narrative. The children's maps and pictures depict Explorers Club activities.

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For fourth graders (9- and 10-year-olds), listening to a reading of *My Side of the Mountain* (George, 1959) is a sure-fire winner. The character Sam Gribley's construction of the ultimate fort, the hollowed-out inside of a giant hemlock tree, spawns construction fantasies in children. When a Vermont teacher encouraged shelter building as a follow-up project to do at home, many children in his class took him up on it. Children constructed shelters using only natural materials, wrote a descriptive report, and provided drawings and photographs.

Middle-school children (sixth graders) in Concord, New Hampshire, participated in the Game of Village over the course of an entire year. Using a scale of 1:24, students created miniature selves that homesteaded wild land, first creating a primitive shelter, then a crafted home, and finally the infrastructure, services, and economy of a village settlement (Iselin, 1987). All the subject areas of the curriculum were integrated in this simulation, which fully realized Cobb's directive to "make a world in which to find a place to discover a self."

These are but a few examples of how educators can acknowledge the unique world-making desires of middle childhood and shape curricula to provide appropriate experiences for children. If we allow people to shape their own small worlds during childhood, then they will grow up knowing and feeling they can participate in shaping the big world tomorrow.

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BLOCK BUILDING: ARCHITECTURE IN EARLY CHILDHOOD ART EDUCATION

Suzanne Kolodziej
Memorial Art Gallery of the University of Rochester

Block building is a vital component of early childhood education, supporting language arts, dramatic play, social interaction, and physical development. For over three centuries building blocks have been standard educational equipment in preschools and kindergartens. Through block building, children learn to manipulate form and space as they develop a basis for understanding the relationships between art, science, and mathematics—the foundation of architecture. This chapter details a lesson designed for young children, as an introduction to architecture through block building. The lesson honors the exploration process so important in art education. By providing children numerous opportunities to build with a variety of forms and shapes, we help them to naturally acquire an understanding of the design, structure, and function related to architecture. As children continue to experiment, they gain insight through discovery of basic building principles inherent in architecture. Many of the block sculptures created by the children reflect actual architectural structures. These structures are evidence of children's unique understanding of their built environment. This understanding may result because the emphasis was placed on the process of building and constructing with forms and space.

Introduction

> Since space is what the child first feels, space is the beginning point of instruction. Through an understanding of space he can learn to find himself as a feeling, understanding, perceptive, rationale being, and be led to see the inner coherence of material things, of the oneness of the material and spiritual worlds. (Froebel, 1895, p. 19)

Frederich Froebel's kindergarten ideology stemmed from the belief that learning developed through play. A child's play could be transformed from an outlet for energy into instructive games designed to inculcate interest in and respect for natural

objects (Manson, 1953). Those natural objects Froebel created became known as the "Gifts," which were wooden block sets devised of a series of interrelated blocks that became the basis of his child-centered educational philosophy. Froebel, a German Romantic, conceived his "gifts" as a method of education based upon a pantheistic conception of nature. As children played with basic geometric forms, the cube, the cylinder, and the sphere they learned the principles of unity, inter-connectedness, and the connection of opposites. The value of block building from Froebel's perspective began early in a child's life, contributing to intellectual and physical growth as well as to the child's spiritual development.

This chapter describes how architecture can be introduced to young children through block building in an art education class. Through repeated opportunities to create with forms and space children gain a natural understanding of basic building principles inherent in architectural structures. This chapter specifically addresses the relationships between art, science, and mathematics to block building and architecture. Architect Frank Lloyd Wright noted in his autobiography that Froebelian kindergarten blocks served as one of the early influences that contributed to his future in architecture: "The smooth shapely maple (Froebelian) blocks with which to build, the sense of which never afterward leaves the fingers: form becoming feeling" (Wright, 1932, p. 11).

There is a simplicity to building with blocks. Assembly is required, but unlike most toys, without the assistance of an adult. The intuitive nature of the activity requires no instructions, rules, or batteries. Without the initiative and imagination from the child, the blocks lay lifeless, mere pieces of wood. It is only by the child's hand that with the addition, subtraction or rearrangement of blocks, towers are created, castles constructed and cities are built. Through block building, the child is free to improvise. As the child's ideas change, the form and the structure change. There are no limitations to what can or will be constructed; it is an experience that constantly evolves. Block building develops the processes of planning, constructing, organizing, and playing. The adaptability of block building allows the child to address their own needs, reinvent previous experiences, or dramatize an imaginary situation. In many instances imagination and reality merge, as the child simultaneously creates a recognizable architectural structure that is rooted in pure fantasy.

The Art Lesson

My interest in block building began as a student of art education while teaching preschoolers and kindergartners in a practicum art course. The purpose of the practicum was to provide the students an opportunity to work with children prior to our student teaching experience in the public school system. I was fortunate to have taught for two years in a private school and came to the teaching practicum with little apprehension. It was a lesson that I taught in this practicum that forever changed how I viewed the importance of the art process in the education of young children.

I had painstakingly planned and introduced a lesson on the concepts and definitions of shape, form, and sculpture using wooden blocks. I then gave a brief demonstration on how to glue the wooden shapes and forms to create a sculpture. After my

demonstration, I let the children choose the blocks that would become their sculpture. I efficiently handed out both the boards (which the blocks would be glued to) and the glue. The children quickly dipped each block into the glue or applied the glue to the block, using a tongue depressor, and assembled their sculpture. The entire experience of creating the wooden sculpture lasted less than seven minutes!

It wasn't very long into the assembling of the children's block sculptures that I realized the mistake I had made. I ended the exploration process by handing out the glue. In retrospect I should have handed out only the blocks and let the children explore the process of building, which would have easily absorbed them for a good portion of the class period. Only during the last part of the class was the glue necessary. In my eagerness to provide the children with an appropriate experience developmentally, I inadvertently denied them the experience of the process. I learned from the children that the opportunity to play with the blocks was as important, if not more important, as creating the block sculpture. Fortunately, I was able to rectify my mistake in the second class that morning, but the memories of my first experience have continued to influence my teaching.

Block Building

The impetus of the idea to have the children continuously play with the blocks for a short period of time on a weekly basis was heightened by my experience in the teaching practicum. For several years, I taught art to young children in an introductory art course, "Drawing, Painting, Printing, and Design." The children were introduced to the basic elements of art in this course and began each class with block building. The blocks were not shared as in a typical preschool or kindergarten; instead each child had his or her own bag of blocks that had been chosen from an assortment. To increase the interest of block building, each week the children chose new blocks to add to their collection. With this collection the children investigated and discovered the relational understanding of architecture, art, mathematics, and science inherent in block building.

Block building in my art room is an independent experience, part of the routine of the class. The block building honors the exploration process so important in art education. Each child builds according to his or her own capability and acquires new skills through practice and observation of other children's building techniques. There is type of anticipation combined with a calm sense of security as the children are involved in the process of building, whether it is the element of surprise that may await or the feeling of accomplishment as they challenge themselves and succeed in mastering the complexities of the various forms. My part in the process was to share in their discoveries, observe their attempts by providing descriptive comments, and to allow the children an opportunity for reflection of what they had built. I never directed what was to be built or how they were to build something. In the 5 years of using this approach no child has ever asked for these kinds of instructions. The instructions simply to choose a new block to add to their collection and build with the blocks until we begin our lesson for the day have sufficed.

Blocks in Art Class

"Building with blocks is better than fun!"—Erin, age six.

Since I began using blocks in the manner previously described, I have watched children design cities, houses, temples, farms, and apartment buildings. The opportunity to build with the same blocks over an extended period of time creates an environment where the children learn to predict certain outcomes as they become familiar with the properties of the blocks they have built with repeatedly. Each week, with the addition of new blocks, a challenge was posed as the children learned by their own methods of invention. One small cube, a wooden spool, or a pair of chopsticks created numerous possibilities that were unavailable the week prior. "What block would the cube balance on?" "Does the chop stick go through the hole in the spool?" "Look, the spool rolls like the circle shape!"

The psychologist Jerome Bruner (1987) discovered the following:

> The sequences of play that were the longest and richest and the most elaborated were produced by materials that had a structure that could be called instrumental—that is to say, episodes that had means that led to an end. Mostly these were activities and materials that made it possible for the child to construct something. They were constructions, whose progress could be appreciated by the child without instructions from or recourse to an adult... (p. 8)

Bruner revealed that another factor contributing to prolonged rich play was the presence of an adult. The type of presence most beneficial "...gave some assurance that the environment would be stable and continuous, but would also give the child reassurance and information as if, and when the child needed it" (p. 8).

Over the years I have watched several children in class contentedly investigating the properties of "art building," as Froebel referred to the methodology of modifying and changing existing structures instead of tearing them down. Froebel believed that "art building" taught respect, patience, and inter-connectedness (Clements, 1975). "I like to make houses, buildings, and towers—You can build a lot of things," Samantha, age 6, explained to me as she rearranged her blocks. The different building techniques occurred spontaneously without adult guidance or direction. Theresa, age 3, displayed a row, one of the earliest forms of construction. She independently constructed a row created by the repetition of blocks upon the table. Blocks aligned next to each other to form rows can become floors for architectural structures. As children experiment with the linear formations of rows, they eventually begin to use space vertically to create towers. Towers similar to rows appear early on in a child's building. "Part of my blocks are going to be a tower," Erin announced. Moments later the tower became a treasure box as Erin revealed, "I am pretending that this is a treasure box." The idea of the tower was consistently repeated throughout the children's building. "It's a tower and people can go inside the little holes. People walk around it," Samantha explained. "I am making a tower, too. People go up it," Jenna, age 6, added. As children build rows and towers mathematical and scientific concepts are simultaneously investigated.

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Figure 1—Theresa building a row out of blocks

Figure 2—Jenna creating a tower.

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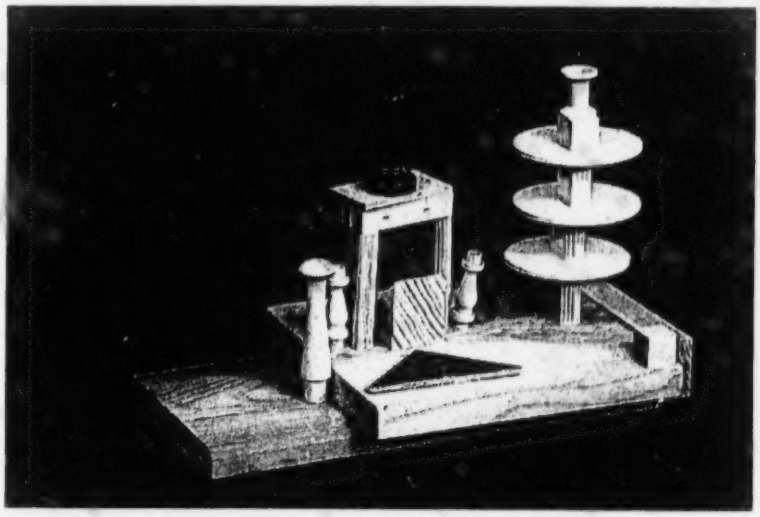

Figure 3
Architectural Structure—Erin's Hotel.

Figure 4
Stephanie constructs a column and beam structure

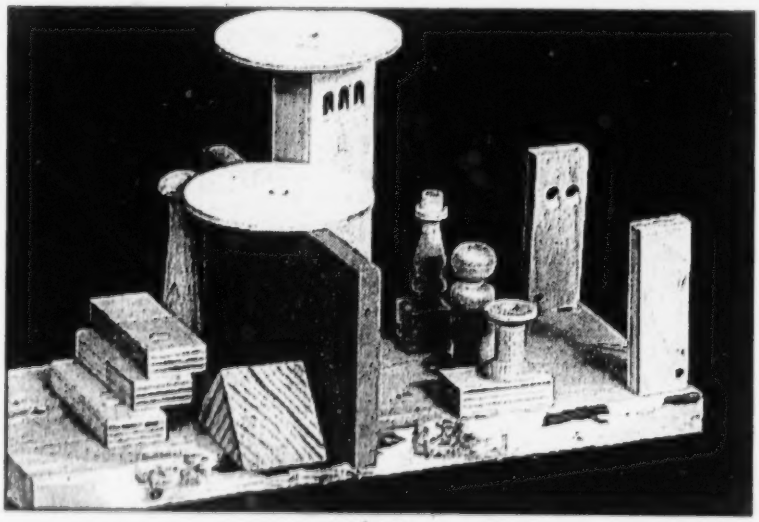

Figure 5
Architectural Stucture—Jenna's museum.

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The construction of rows and towers are mathematical experiences in length and height. In addition, the repetitive task of stacking one block on top of the other is a scientific experiment in balance, stability, and gravity.

After several weeks of playing with the blocks the children are then able to assemble their wooden blocks into a permanent construction. In the demonstration I purposely "play" with the blocks. I pose alternatives about how the blocks can be placed, on which side, on the top or the bottom or which end. I do not offer suggestions or models of what could or should be built. In the demonstration process I try to let the children collaboratively create my demonstration piece so the ideas put forth in the demonstration do not become a model to copy. I usually have each child choose a block and tell me how and where to glue it to the base board. In this manner the demonstration piece is a combination of several children's ideas. I have found this method to be extremely successful in all my art demonstrations. By involving the children in the process of my demonstration, I remove my influence from the final piece.

Their permanent sculptures display a variety of building techniques basic to architecture. The sculptures on the previous page were created by children in my art classes at the Creative Workshop, the studio school of the Memorial Art Gallery of the University of Rochester.

In Erin's hotel, the pattern created by the square forms and circular discs is a tower. The square forms are lights and the spool on top of the tower holds the light. The two cubes, one in front of the tower and one behind the tower, "make sure that the lights do not tip over." The rectangular form attached to the base board is a porch to her hotel. The column and beam formation is a child's bedroom, the triangular form underneath is a slide! How convenient to walk out of your bedroom to a playground underneath! Columns and beams are common in the construction process of young builders. Columns are vertical posts that usually support beams. A beam is a structural member that supports a heavy load like a wall, a roof, or a road (Walker, 1995, p. 31). Three-year-old Stephanie displays her pride in her column and beam structure that balances three decorative wooden forms.

Jenna's architectural structure is a museum. She divided the space with a rectangular form which creates a division between the downstairs and the upstairs of the museum. To the left of the rectangular form are the stairs that lead to the upstairs of the museum. The large rectangular form with the circular disc on top is an elevator within the museum. Upstairs a small wooden person is viewing the sculptures in the museum. Jenna used the more decorative wooden forms as sculptures placed upon pedestals in her museum. Jenna shared that building with the blocks was fun because "you could design it any way you wanted to."

The artistic concepts of balance, shape, symmetry, repetition and space are used throughout the building process. Symmetry appeared to be a concept that children intuitively examined as they built with the blocks. Throughout the process of building Samantha usually created structures that were symmetrical and balanced. When she finally assembled her blocks into an apartment building, it was symmetrical and balanced in its construction.

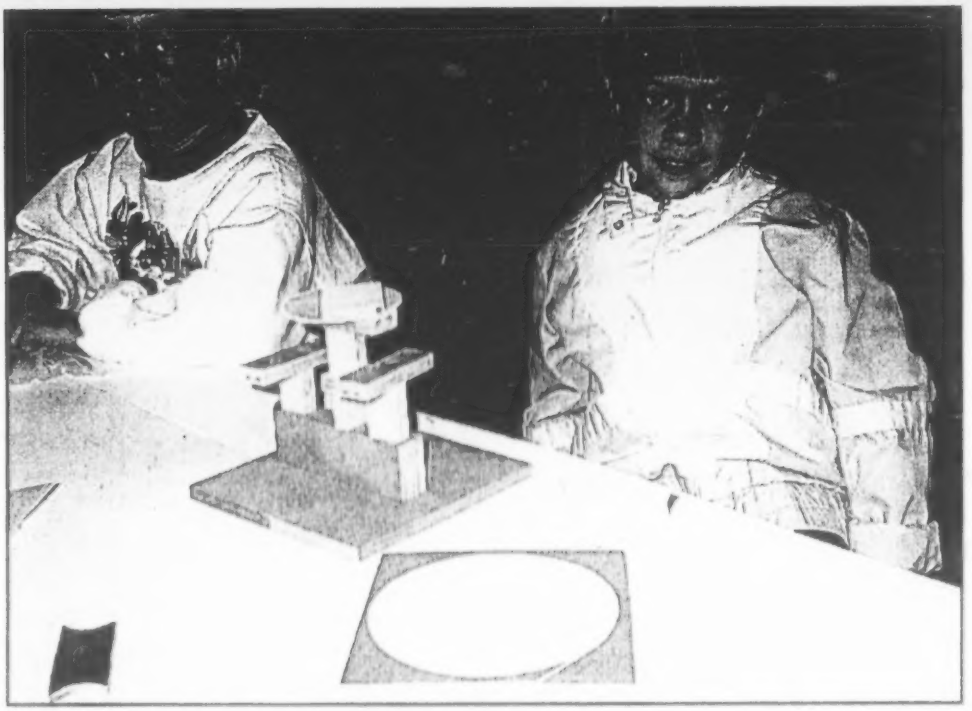

Figure 6
Samantha building a structure that is symmetrical and balanced.

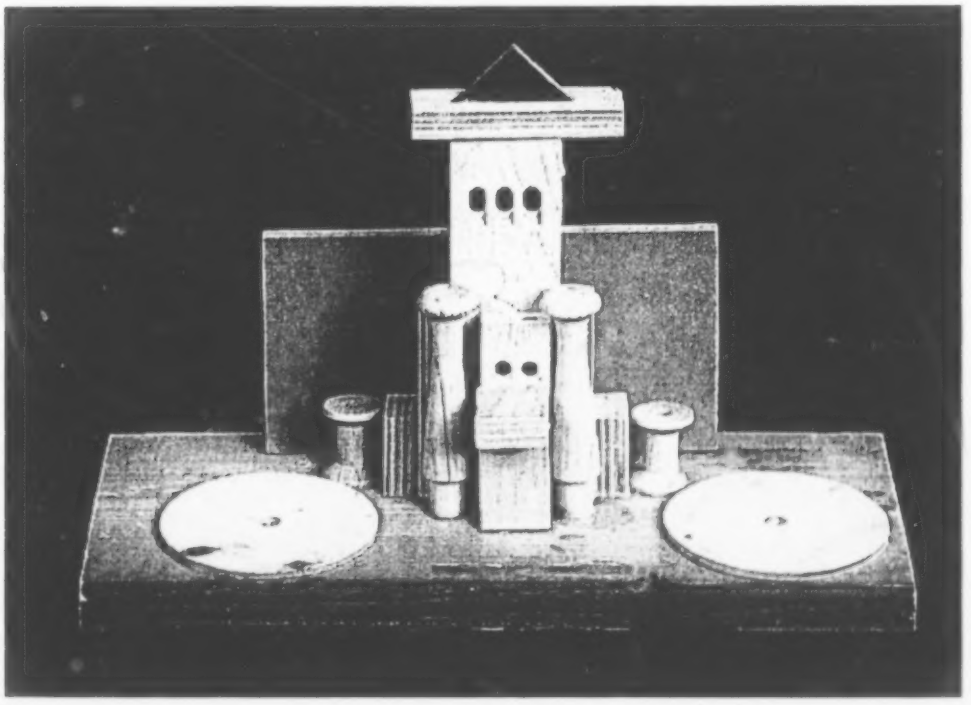

Figure 7
Architectural Structure—Samantha's apartment building

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Figure 8
Preschooler creating an enclosure for the toy horse.

Figure 9
Boris experimenting with the wooden blocks.

Art and Math and Science

"A child's artistry in and feeling for block building is closely related to the true mathematicians view of mathematics as a creative art" (Leeb-Lundberg, 1984, p. 30). Each week the children began the class by counting the blocks. This was their own idea and seemed to become somewhat of ritual prior to building. The repeated counting and simple classification activities continued every Saturday morning as children dumped their blocks out of their bags, stacked the discs in one pile or sorted the various blocks by shape or form. This is math that is practical, and uniquely related to the child's own concerns.

The aesthetic sensibility in block building, their shape, form, and the use of patterns and symmetry, is inherent in the mathematical structure of building with blocks. The use of space is a concept that is aesthetic, scientific, and mathematical as rooms are created by placing the blocks to form an enclosure. (Walker, 1995) Children would often pull out small toy cars or animals and build a structure for these toys. A preschooler demonstrates an enclosure she created for the horse that she brought to art class (see Figure 8).

Numerous scientific concepts of stability, gravity, weight, balance, rest and motion are explored as a child builds with blocks. Science is a process of inquiry—observing, comparing, classifying, predicting, and interpreting. Block building is a medium that is particularly well adapted for the use of many of these processes (Moffitt, 1984).

The children were directly experiencing the concepts of stability, gravity, weight, and balance one morning when they started to blow on their blocks to see if they could topple them over. Erin was able to make one small block fall off the top of her structure. Whereas Julia, age 6, had several pieces which she was unable to topple over by blowing on them. "I only had one piece; she had a lot of pieces," Erin concluded. After she was unable to blow the entire structure down, Erin added "I can't blow mine down because it is a brick castle."

"I like to roll the circle up the hill and make it drop down," Boris, age 5, said as he experimented with a ramp he built. Boris was not only working with the scientific concept of rest and motion with the blocks, but he also created a simple machine, the ramp or the hill as he described it. The basic shapes of blocks are evidence of "rest" and "motion"—the flat surfaces remain still while the rounded cylinders roll (Starks, 1960). "You've got to see this" Zachary said as he played with a wooden spool. "It rolls. Wait a minute, this looks like a wheel," he added.

Zachary, who is 5 years old, would often talk as he built with his blocks. After he completed his block sculpture I invited him over to describe what he had created. Zachary explained that he created a city. As he was explaining each part in detail, he then paused for a moment. I felt there was something else he might want to share. I asked him, "Is there anything else you would like to tell me about building with the blocks?" He sat in his chair very quietly, as he reflected on the question. A moment later he motioned that he would like to whisper the response in my ear. I leaned over to hear "Well Suzanne, I love it in my heart. I love it so much because it is good."

Conclusion

Historically block building has been an integral part of early childhood education. Through building with blocks children are engaged in the process of experimenting with forms and space, the foundation of the built environment. The opportunity to repeatedly build with blocks, while emphasizing the need for exploration can be an age appropriate method of introducing architectural education to young children. Robert D. Clements (1975) stated that "Mrs. Wright had predestined that her son would be a great architect from his birth. She used the (Froebelian) 'Gifts' not only as a means of providing her son an early general education, but more importantly, as a means of providing him an early architectural education."

Of course, the lesson described in this chapter was not designed for young children to become great architects. It evolved from the children's desire to build, plan, construct, reflect, and build again. The architectural structures built in art class were constructed from a material that accommodated the child's own needs, concerns, and inventiveness. Through this process I learned from the children that they will naturally create structures that are an interpretation of the built environment that surrounds them.

In his last interview Frank Lloyd Wright professed that a child should begin to learn what is called art at the earliest possible age. "Put blocks in a child's hands. Let the child hold a sphere, a ball, and get a sense of the universe, a sense of God" (Farr, 1961, p. 278). Building, similar to creating art, is a process, an experience and it is *during the process* of what is built or created that children may learn how to let their thoughts, ideas, and dreams take form.

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Resource List

Block Sets Relating to Architecture

Archi Sources, C.U.B.E.
5328 W. 67th Street
Prairie Village, KS 66208
(931) 262-0691
(913) 262-8546 Fax
Email: ginny@cubekc.org

Back To Basics Toys
4315 Walney Road
Chantilly, VA 22021
Phone Number 1-800-356-5360
Catalogue featuring numerous block sets and unit blocks.

Flax Art & Design
P.O. Box 7216
San Francisco, CA 94120
Phone Number 1-800-547-7778
Russian Architectural Blocks

Hearth Song
6519 N. Galena Rd
P.O. Box 177
Peoria, IL 61656
Phone Number 1- 800-325-2502
Catalogue featuring Kapla Building Blocks

The Metropolitan Museum of Art
Special Service
Middle Village, NY 11381
Phone Number 1-800-468-7386
Roman Arch Block Set and Fun With Architecture by David Eisen

Museum of Fine Arts, Boston
Catalogue Sales Department
P.O. Box 244
Avon, MA 02322
Phone Number 1-800-225-5592
Architectural Blocks, Greek and Roman

REO Interest Inc.
79 Maple Street
Bristol, VT 05443
Phone Number 1-800-775-ARTS

Frank Lloyd Wright ™ Archiblocks®

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The author wishes to thank her parents, Michael and Pam Kolodziej, and Don Olney of the Toycrafter for the generous supply of wood.

CHILDREN AS ARCHITECTS

Dr. George Szekely
University of Kentucky

Children are builders and designers. Many of their best works are found in backyards and home studios; their rooms. These masterpieces are temporary constructions made from everyday materials which may not look like buildings of our time. Children's architectural achievements are seldom taken seriously because their architectural goals and processes are not the same as adults. Art teachers designing an architecture curriculum for the classroom would benefit from starting with a thorough examination of children's building activities outside of school. Their freedom of building with everything and their unique sense for architectural opportunities in all kinds of objects, collections and events need encouragement. Within their play structures lie the seeds of the most significant building ideas of the future.

A Need to Build

Children discover the most interesting spaces to move into and set up inside. "There was an old lady who lived in a shoe." Parents read this as just a story, but their children know such people, having personally located many of them in shoes. Many fast-food figures have been observed to dwell inside a fancy "Nike" home. I often come home to find my shoe rack missing from the closet. Nearby, it is set up and furnished as a multi- story apartment with someone driving my new shoe into the ground floor garage. Children have a keen eye for forms with architectural potential. They appreciate my slides of unusual women's shoes photographed at the Philadelphia Museum of Art and enjoy browsing through my collection of historic women's shoes. Beyond adults' imaginations, children visualize incredible dwellings explained through detailed tracings, wrappings, and drawings for how each shoe may be remodeled for occupancy. Daily objects become children's building materials and daily events their sources for inspiration.

When front porch lights are dimmed, it means kids are on their way home with Halloween baskets overflowing. The evening is not over; yet now, come the trades, the sorting, and the magical chocolate villas built between candy streets way before anyone should dare taste. When children are allowed to touch and play with everything, playful hands discover all kinds of unusual building materials. In children's unique architecture, phone books and encyclopedia rise into gently angled towers, and soft

pillow walls rise to protect special play friends. School architects create secret dwellings scaled down to eraser blocks, or Pringle pagodas inside a lunch box. Adults need to pay attention to children's building block inventions and form fresh ideas.

Children learn to design by volunteering to "set up" the dinner table and explore architectural relationships between dishes over placemat "plots." The exploration continues by silverware players at the table, and children are accused of playing with their food. Children are mistaken as fussy eaters when they carefully set up their beans next to two long carrots with a measured space between mounds of mashed potatoes, a custom-built meal on a circular ground.

It is difficult to leave a fast-food restaurant with children who recognize the home of the most advanced contemporary building materials: french fry boxes, burger containers and wrappers, unusual coffee lids, and clear salad boxes. The "good" child helps to clean the table, while the "bad" one wants to export all the building supplies home. Volunteering to put away groceries on shelves, to put socks into drawers, or to clean out mom's jewelry box are all opportunities to design and construct with objects. Children who are allowed to view their environment as a vast building supply store inherit great construction opportunities. Collecting all our family hair brushes allowed me to invent memorable houseboats in the tub, long before Bristle Blocks were invented to stick forms together. Now, my children ask for combs to create colorful enclosures and garden fences for their toys. Laundry days used to be a special opportunity to rummage through our family clothespin collection and to snap together gravity defying structures. Our children's highest architectural achievements come from assembling mom's hair curlers on spongy coaster bases. In observing their plays, I build my list of art room architectural supplies.

As future preservationists, some children care about their rooms and work hard to maintain an environment they consider beautiful. They desire their own space, and even in a hotel room, they want to know immediately which is their drawer to decorate and provide a comfortable space for toys and souvenirs. In a child's room, the door knob, the door, switch plates, walls and bulletin boards are always redecorated. Window sills, shelf tops, and boom boxes are pedestals and display sites. Any lamp, switch, or hanger receives decorative attachments. As adults at home and in school, we need to clear the doors and "lease" spaces of all kinds to child designers and decorators.

Young architects and designers have the most diverse clients. Pets, action figures, and stuffed animals all require various accommodations for shelter and play housing. Not long after our Yertle the turtle came home, the remodeling of the aquarium began. A decorative beach scene, a custom rock garden, a new roof with a billboard soon turned an ordinary glass case into a five-star hotel. Children specialize in imaginative housing solutions which unusual clients demand. Pets, toys and found objects need to be invited to school playing.

Children have their own architectural interests which grow out of their experiences in their community. As a child in Europe, I wandered through the mightly cathedrals and Hapsburg palaces of Vienna. My own children want to go through a car wash and are excited to attend the grand opening of a new super Kinko's store. Upon their request, we visit an RV showroom and collect the latest brochures on recreational

vehicles and mountain tents. In our art class, students recall in great detail places from their childhood and the architectural elements of our state's new auto assembly plant which they recently toured. The architecture in our community and the children's interests have to be considered in planning their initial experiences in and developing their love for buildings.

As children grow, their hands are silenced and expected to be kept out and away from things. Kitchen cupboards are closed to playful inspectors. Personal collections from the woods or street are sometimes unwelcome at home and in school. Children have few building opportunities or time to make their own things. Their rooms eventually turn from play studios to offices for homework. Architecture is studied from adult examples, design principles, perspective formulas, or even computer simulations. Children forget their rich block building and orange peel construction pasts because, in school, architecture is no longer presented as a child's invention and discovery. Shaped by adults, it is taught as other school facts and formulas through efficiently packaged lessons. Children who are in the best position to foresee the future of architecture and design should not be neglected. School programs need to be aware of youthful starts and be supportive of expanded and enriched architectural playing and inventing which does not stray too far from early block playing and sandbox type experiments.

Architectural Plays

Before my shiny, new, metallic-green tea kettle with a red spout took its hot seat on the stove, it came with me to school. Children surrounding the kettle all wished for one, not out of love for tea, but to make things with it. Adults often don't understand why children want an object and are unaware of their secret ability to architecturally appraise most forms. A revolving space station and a domed, metal fort were among the suggestions for the tea kettle. Contemporary architects like Robert Graves and Charles Gwathmey, who designed impressive tea kettles, view them as small buildings, a part of their larger architectural vision. Children view objects playfully with an interest in converting them, or even moving inside. All this can be practiced in school.

Why should anyone want to stuff a newspaper recycling bin into their compact car? The large green garbage can with its handsome dome cover would not fit into the trunk of my car, and I had to walk it to school. Children quickly figure out ways to "get into" these handsome contemporary forms, levitating and launching them through their imagination. Surface decorations, interior remodeling, wrappings, tracings, and drawings customize each object they play with. Just as I loved climbing into my mother's straw laundry basket while she was doing the wash, lining it as a battleship, dressing it as part of a hot air balloon's fancy gondola, children create the most interesting forms using daily objects to envision the future. As we pass through the detergent box aisle of a supermarket, kids see neon-colored streets with bright slab buildings. A toy chest of many forms and a collection of different Slinkys are stacked and woven into wiggly, spiral developments. Daily manipulation and visualization with children's props offers exciting alternatives to the traditional house form. Children who regularly build with everyday environmental forms learn to see the

world as filled with discarded and overlooked architectural opportunities which may come from nature, a toy, or a supermarket. Thinking about architectural ideas as being inspired by things one can collect, pocket, and place within one's hands, opens up a young builder's dreams.

Architectural plays are a search for alternatives and reshaping ideas about contemporary buildings. Children are the freest to draw upon unlikely sources. I was not excited to live with a gerbil, but went with my daughter Ana to look at different habitat styles. Even Moshe Safdi (the inventor of habitats) would be amazed at the variety of snap together units available just for pets. We decided to purchase one room and a recreation unit. Ana used it in her own play building and forgot about the gerbil. House hunting, with children, can lead to the pet store where old holding pens have been reshaped into luxurious play houses. Children collect nature's own dwellings, carefully storing a nest of a fallen bird, wasps, or hornets. A study of children's own outdoor architecture reveals the ingenious weaving and use of all outdoor natural and building materials. This shares kinship with nest builders and tribal architects who have created magnificent earth villages and stick housing which we admire through slides.

Architectural plays in school are, in part, remedial acts affording children opportunities to collect, have access to, and play with unwelcomed stuff. Young architects work under desks, covers, counters, and kitchen cabinets. Kitchen and home closets are the first to be child-proofed and set off-limits for children who admire looking at, and building with, pots, pans, or tea kettles. Today's pots and pans, in fact, have become adult toys to admire, moving from beneath the counter to hanging kitchen displays high up, but still off-limits to young players. In our class, model communities are built from a vast collection of modern and antique kichen items, leading to a contemporary revolution in housing ideas.

Childhoods are filled with unusual carrying cases and other containers in which kids can gather collections and later unfold as shopping centers, garages, or fast-food restaurants. Future architects are not carrying briefcases, but toy-carrying cases which also serve as buildings that can be carried and opened up at any site. Collectors' cases, lunch boxes, and pencil cases have a rich history and are important architectural forms for children. In school, we can create and study a historic collection of each. We add our imaginations while playing and furnishing each collection. "Pee Wee's Playhouse" is the classic hinged carrying house with oddly shaped walls, unusually framed openings, and interior levels. Children who open it frequently ask,"Why can't our homes be as much fun?" In our class, there are many opportunities to open up and look inside suitcases, hatboxes, and instrument cases and to envision portable play homes in carrying cases.

Opportunities to open up, put on, look inside, and place toys and figures into vintage ice chests, jewelry boxes, and geometric pocketbooks build a fresh vocabularly for living spaces and forms. Vintage stores with unusual 1950s lampshades, 1930s top hats, 1940s straw bonnets and 1950s Amelia Earhart luggage sets are fun places for adults and children to browse. Daring forms from the past include toasters, juicers, thermoses and radios, all of which we review in my art education class, advancing the notion that new building inspirations need to be shopped for and discovered in

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antique and in new items. We trace, rub, renovate, and create playful architectural proposals from a collection of Bakelite pocketbooks circa 1949-59, turning them into Bakelite cities. Because there is no proper shopping place for architectural players, our new art teachers are prepared and are ready to support young architects' collections and shopping in all places. We playfully dream of converting the latest fast-food container from McDonalds, objects from nature, or items from Goodwill stores into model buildings.

Home Studios

With a pruning shear in her basket, Ana's friend Laura rides her bike to our house. They scouted the backyard yesterday and designated a bush, with a secret entrance to its interior, for a clubhouse. In their studio (their room), or outside, children are connoisseurs of unusual spaces. Caverns beneath a desk, or secret spaces under a bed, become housing sites. With future art teachers, we regularly study children's rooms to discover clues to their building. We take notes on preferences for places with a view such as window ledges, cabinet tops, or special real estate near water—counters around the sink. We find children's setups on the unusual grounds of a patterned carpet, or trip over them on stairs where children like to build. Like adult architects, children carefully pick places to build, often inspired by a particular space and surface. What parents consider just a messy room is, in fact, an architect's working laboratory with an array of temporary building sites.

Children move into drawers, closets, and all unusual interiors in the house. When all of our family's sweaters are on the bed, someone is playing house inside the plastic hanging storage unit which has been turned into a striking apartment. Children will move into your hatbox, turning it into a planetarium, or stack swim wings to dwell in a building which suggests a young Frank Lloyd Wright playing his way to the Guggenheim Museum.

Children ask for a toy, but it is often the box they really want. They accompany parents on shopping trips just to find the right container to remodel. Few boxes ever enter a home without a child's inspection with ideas as downpayment for its use. Children practice their conversion and remodeling talent using containers of interest to them. Store-it-All and the Box Shop, in town, are among children's favorite building supply stores.

Children freely adapt architectural ideas from all experiences. The idea for a revolving room with circular windows comes from Ana sticking her head inside a washing machine. When our allergist gave strict orders to wash all stuffed animals, Ana carefully studied the space her dolls were to ride in. She looks inside ovens, vending machines, worms, or the back of an open computer with great interest. The opportunity to look inside things promotes an architectural openness to viewing interesting spaces. Ana builds a circus inside the open trunk in back of the car while I cleaned its front. Looking inside things and using space ideas need to be a prominent part of preserving the architect in a child.

Stacking and assembling soda cans, mugs, dominoes, or rubber bands and appreciating the stocking of store shelves are examples of children's extended interest in block playing. But, will there be opportunities to build in this way as children grow?

We also notice children's interest in framing building sites. Children lay out birthday presents inside a Hula-Hoop and create displays in trays and areas blocked off by jump ropes. Large party trays and family drawers become popular building frames or containers in which to display forms or create play houses. Children can work as adult architects, understanding the shape, form, characteristics, and function of building sites as they are challenged by placing constructions within defined areas and spaces. In setting up opportunities to build in school, we need to import the Hula-Hoops, plastic hanging units, cardboard drawers and shelves, step stools, and carpets to be further explored by children.

Transplanting Children's Architecture to School

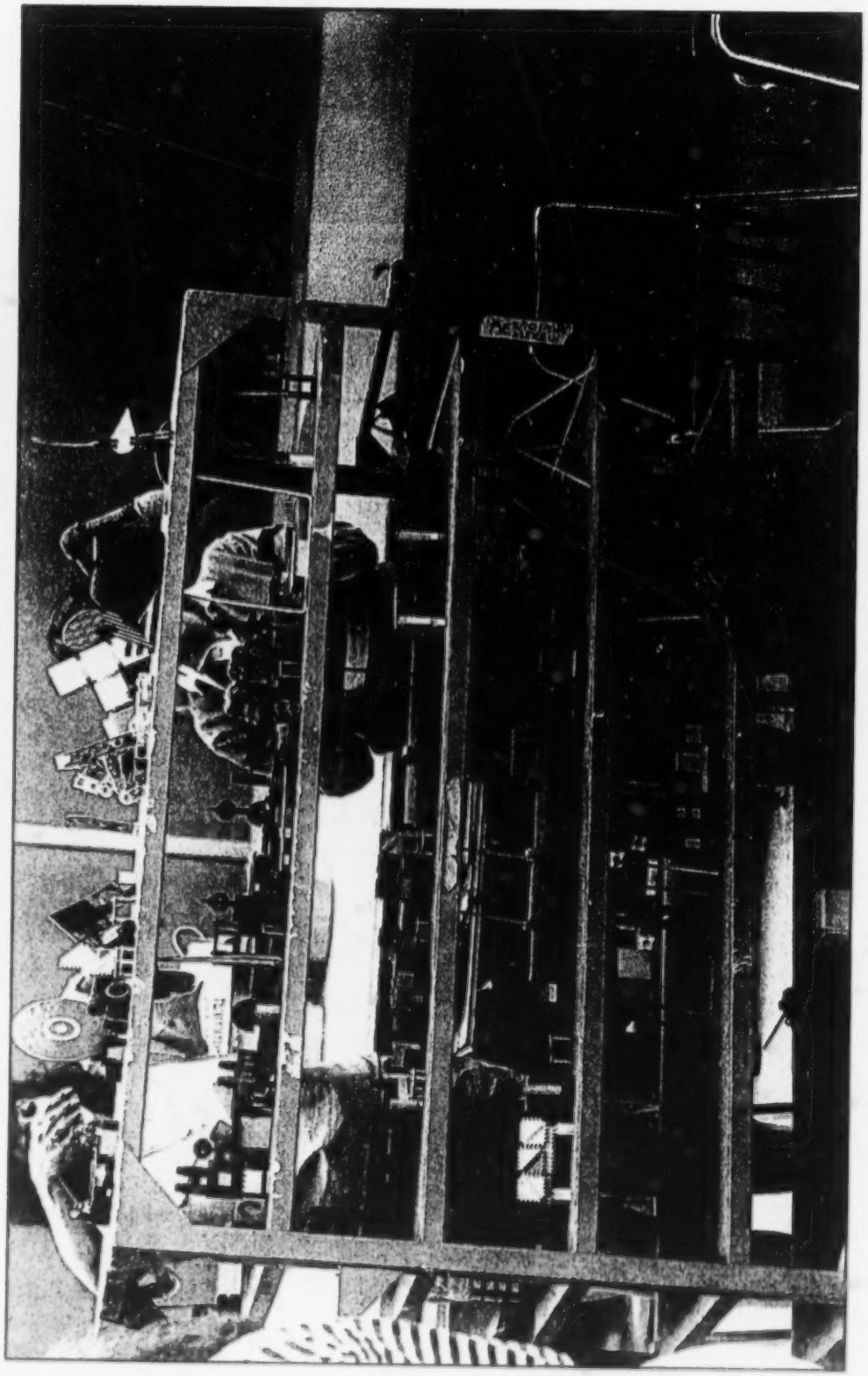
Using photos, videos, and discussions of children's home building plays in class legitimizes their architectural experiences. In class, expanding the practice of home architects may involve such acts as using play building supplies found at home, and making them available in expanded collections. Not only do I curate the world's largest and most unusual pillow collection for art room builders, but I enrich this soft building supply with bean bags and inflatable floats. Bathtub architecture needs to be recognized in classrooms. Floating sponge and bottle cap cities can dock in school ports set up in play pools. As floating architects, children are prepared to meet and view adult builders who located their masterpieces on or nearby water sites.

Each season has its building opportunities that children appreciate. These need to be studied and explored in school. During the fall, for example, my classroom entrance-way is lined with rakes propped up with a red wagon filled with surveyors' ribbons and flags used to mark outdoor rooms and leaf building ruins. Other gardening tools are saved for the winter in reshaping mounds of snow. Mud, ice, and twig houses from different cultures are also of interest to young school yard builders.

Most school furniture is permanently bolted to the floor to organize activity and control students. In art classes, we have to mobilize furnishings, one of children's most significant structuring materials. In school, we move under and in between furniture to house troops, to invite guests for a tea party, and to build theaters for performances. Over furniture supports, towels and blankets become soft tops, just as they do in home shelters. Student sketches further detail interior and exterior innovations to dwellings and furnishings.

Art room counters stay open and available even after kitchen counters at home are not. Art room crates house the best in antique and new kitchen gadgets to invite browsing, shopping, and construction ideas. Children can be further encouraged in school to build with a wide variety of everyday objects.

Art rooms, as shipping departments, constantly receive interesting cases of cups, lids, trays, and napkins. Everything in bulk can be used as a building material before taking on its intended use. Just like child builders at home rely on home finds, the same practice should be welcomed in the art class, where rulers, erasers, pencils,



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lunchboxes, books, and paper clips can be pooled into large building sets. There is no contest! Because homes may have more unusual building resources than schools, we welcome special home finds to class and encourage home shopping for objects and the ideas they represent. For example, we admire a student's home selection such as a multi-level tackle box that becomes a multi-story museum. An old weathered tool box from home is selected for its aging appearance as an art room preservationist turns it into an old railroad station. Building at school picks up where home play leaves off, turning a collection of the latest perfume boxes into elegant homes.

Toy Story and Architectural History

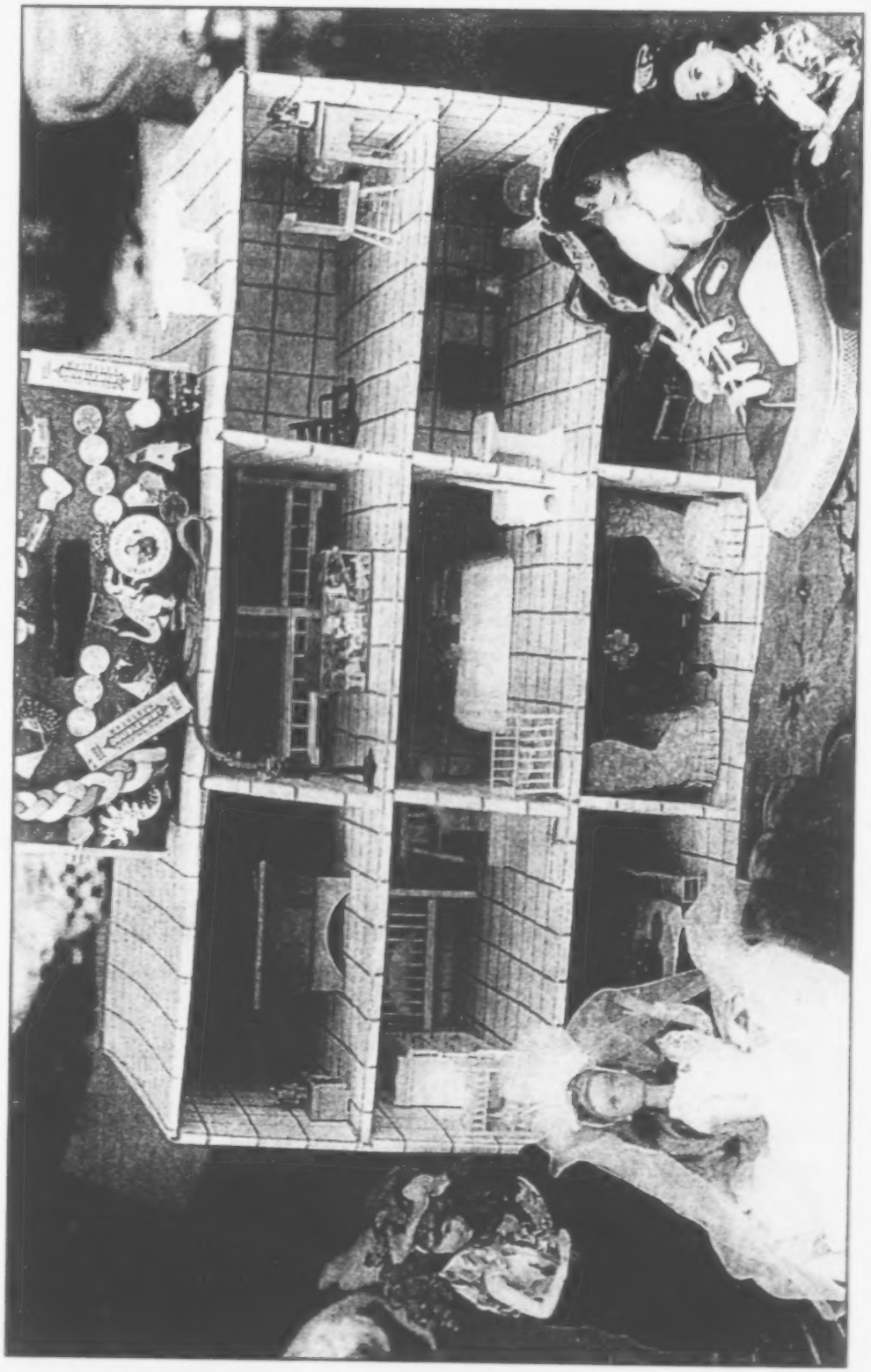
In my classroom, children enter buildings from different periods through the front door. This is possible because of my extensive collection of play houses representing different styles. A large chart of architectural periods in the United States hangs on my office door, drawn by children interpreting the houses where they played. A wood one-room schoolhouse from the turn of the century was found completely decorated. A cardboard general store from the same period even held sample wares for sale. Stenciled tin homes from the 1930s to the 1970s can all be furnished. A variety of late plastic models speak of contemporary dream homes. Children get involved in architectural history as they set up kitchens with appliances and utensils of a period and consider wallpapering or designing extensions to our playhouses.

Other small-scale architecture that has been useful in our historic visits includes toy train stations, garages, diners, and landmarks, in the form of toy banks, representing different periods of roadside America. Gaps in the collection are filled by postcards and stereoscope cards used in special viewers. Even the stamps from our postcard collection help to illustrate stylistic elements of the times.

It is never too late to start an architectural collection to interest children. Start with family photo albums, sharing pictures of buildings and interiors related to students or the teacher's family history. All kinds of resource finds can be discovered at flea markets, antique stores, garage sales, and family attics. For example, we look at the future dreams of architects by examining catalogs and souvenirs from each of the most notable 20th- century World's Fairs. A collection of old coloring books presents views of U. S. cities during different times, with buildings representing different architectural styles. Some of the more unusual pieces we examine and date are matchbooks with architectural advertisements, old comics, and salt-and-pepper shaker buildings. We not only construct with old play blocks, but admire them by creating structures in various architectural styles. We look at contemporary blocks as well as my first round Lego set with which I played as a child.

Young Architects' Diaries

What do children consider an "awesome" building? Children demonstrate their favorite buildings, interior spaces, and building material finds through sketches and writings in our class diaries. New construction in the community becomes an event to follow—a new car showroom, an airport extension, an indoor football practice



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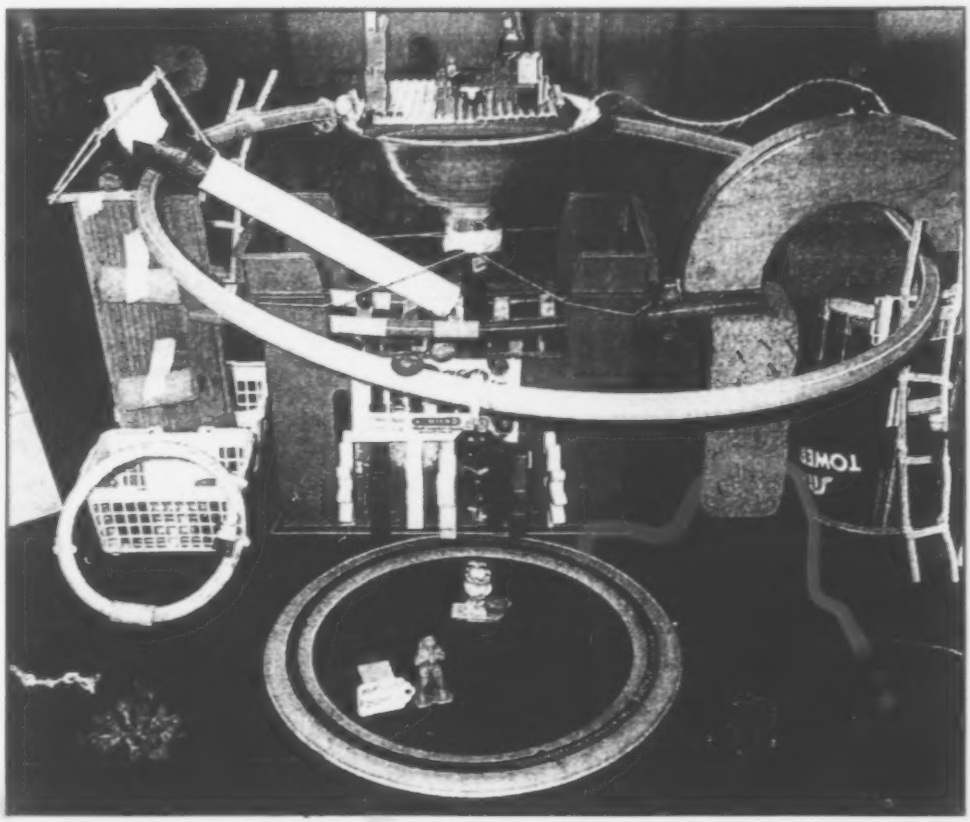
field. From the ground up, students document site changes and critically report on steps and progress including final visits to each place. Class diaries further promote active seeing and investigating. They deputize children as architectural observers and critics with respected ideas as they look at play houses and real houses. Courtesy of young observers, the following notations are transcribed.

- Floors are fun. Flat or hilly, they have textures, colors, and even feel warm or cold, closed or open. Inside, I spread out blankets and towels to build on. Doormats are also interesting. There are always new floors to find outdoors, all telling of different things to build on them.
- Playing cards, envelopes, and folders are great walls. Post-it pads are the best color walls, and they do not fall apart. They may be the real building materials of the future.
- Noodles are long, colorful foam sticks used for swimming in the pool. We can also use them as frames for houses and house boats. Adults copied our idea because noodles are now sold as building sets. Twigs, pencils, pickup sticks and rulers may be sold as building sets next.
- Windows have changed very little. When I need unusual windows for a Lego house, I save plastic fastfood boxes, swim goggles, or borrow my dad's lenses that fell out of his sunglasses or use his extra slides.



- My see-through umbrella is a perfect roof for a playhouse. Cork coasters with tiny colored chips are great covers for a file card fort. I use bright red leaves to cover houses outside. Real roofs are seldom this interesting.

No permit is required to look into the future of architecture. We outline parts of sports car brochures to find new door shapes or study the space shuttle to find unusual windows. Parts of old toys or unusual camera cases, are opened and entered for borrowing ideas. In diaries, children write, draw, and clip out ideas for their diaries which they gather from observation, collecting, and play experiences. We respectfully share even the most unusual ideas. All children have exciting building experiences. It is a subject children learn about by playing and building with everything in every space. Even the study of adult architecture and its history can be especially constructed for children to experience.We need to continue exploring children's architectural experiences and interests in all grades as fewer opportunities for such hands-on study exists as they get older.

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GOING *HOME:* FINDING OUR ROOTS IN LATE 19TH AND EARLY 20TH CENTURY ARCHITECTURE

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The purpose of this paper is to investigate the visions of *home* in American culture, and to help generate student interest in architecture and history by making connections to their immediate experience and ancestral roots through knowledge of domestic space. Far too often, students are presented with architectural images that do not match their lived experience and that serve only to establish and reinforce difference in economic and social terms. Educators striving for inclusion have the opportunity to build upon a base of vernacular structures as well as fine architecture in students' worlds, to create deeper and more interdisciplinary learning. By using architecture as a means of introducing more complex and comparative discussions about environments for living, creating personal narratives of place, students may come to understand and appreciate the values and possibilities in our built-by-human environment.

There is a strong basis for the importance of the concept of *home* in the construction of identity (Handlin,1979; Rybczynski,1986; Schlereth, 1991) and children's sense of self (London, 1994). However, notions of *home* are not fixed, universal constructs. While global telecommunication and enterprise increase pressure for greater knowledge and understanding of culture and identity, many people live in changing communities, where mixed ethnic and linguistic patterns, traditional and/or ancestral cultures and values meet in contemporary spaces and contexts. The relationship between self and shelter is formed under the canopy of culture, and education begins in the home, an unchosen space which surrounds and subtly shapes the development of young thought.

Finding Home: A Place in the Mind

Traditional understandings of architecture as *conscious design* lead us to think of buildings as monuments, state institutions or private estates, indicators of a seat or nucleus of functionality, status or power. Conversely, the idea of home is connected to our

subjective understanding of a zone of safety and comfort which we share with family or 'people like us,' having similar values and customs, interlocking structures for support or maintenance, and even predictable patterns of movement and time management in the pursuit of their survival. Some concept of 'home' or home-land appears to have emerged in pre-agricultural societies, as a somewhat permanent or ancestral dwelling place, structure, or even cave-of-one's-own, perhaps inclusive of land or territories for domestic or tribal use. In contemporary life, our understandings of home are encoded with complex, personal meanings, beyond that of a numerically assigned shelter from the elements or enemies. A family residence, whether castle, farm, or tenement, has functioned historically as a center of display of one's role in the community, social position, occupation, wealth, or lack thereof. The design of a home reflects some of its social and spatial functions; the domestic needs and priorities of agricultural workers differs from urban commuters. Yet for many others, home is not planned or comfortable, nor is it chosen. Throughout history, both rural and urban poor, and 'homeless' individuals and families have constructed temporary habitats from the detritus of nature and civilization. Thoreau (Atkinson, 1937) speaks of encountering shacks of the 'degraded poor' along New England railroad tracks in *Walden*, and simple 'shotgun' cabins framed the lives and stories of African-American slaves (Kemp, 1987; Vlach, 1993).

Throughout the the 19th and 20th centuries, an endless series of revolutions, hardships, and strife provoked an unprecedented displacement of families from their ancestral homes throughout Europe, Africa, and Latin America. In the last two decades, more Asian Americans have migrated and resettled in this country. As most Americans are bicultural, many students may still access the migratory history of their family in the living memories, stories, and photos of their parents and grandparents. Individual recollections and sentiments of 'home' are fragile memories, often based on minutia; the colors and textures of materials, a sense of space and light, or the relation with the surrounding landscape. Teaching students to reflect upon, capture, and collect these memories and details of space may encourage a sense of ownership, and perhaps responsibility, in the built environment.

The Vernacular Architecture of Home

Few people build their own homes today, and most never know or communicate with the architect or builders of their primary residence. But this separation between one's life and one's built domestic environment did not always exist. Average people often built structures for their own use, in the traditions established and handed down in their communities and cultures. The focus on shelter and utility of this *vernacular* architecture often took precedence over aesthetic concerns. Yet the efficiency and simplicity of many vernacular structures, their use of local materials, indigenous or folk building traditions, and close relationship with the land and the climate often result in a unique aesthetic unity.

Whenever people emigrated, they brought the memories, knowledge, and skills of their homelands, and in America, the indigenous architectural vernacular is informed by building traditions from all over the world. Germanic and Nordic log structures

were erected in Pennsylvania, Delaware, or Minnesota, where they merged with the boarded and brick houses of English and French descent (Kemp, 1987; Van Dolsen, 1989). Ukrainian settlers in the Dakotas used post-and-earth construction methods for their permanent homes (Martin, 1989), while Norwegians in Texas preferred traditional rock housing (Breisch & Moore, 1986). Other settlers encountered Native American homes or hogans of wood, bark, mud, reed and thatch (Weber and Seaman, 1985), or adobe pueblos and haciendas in the Southwest and California (Kirker, 1960; Spears, 1986). Many settlers modified their ancestral traditions to accommodate indigenous materials and building types, and studies indicate the early diffusion of Hispanic clay technology and adobe bricks (Murphy, 1989). Sometimes newcomers to America met established communities of earlier immigrants—English, French, or Spanish emigres whose domestic designs more closely reflected their distant European vernacular. Along the Eastern seaboard, single and *double-pile* cottages still lie scattered among small the towns (Glassie, 1975; Jakle, Bastian, & Meyer, 1989), mixed with early framed houses (Cummings, 1979), elegant Federal and Georgian homes (Kimball, 1966), and the *stick* and *Shingle*-style *cottages* of the 19th century (Scully, 1971).

The Internationalization and Commodification of 'Home'

Despite ongoing settlement and resettlements, especially in the West, by the 19th century the American colonies had achieved some stability and permanence. As people became more rooted, residential architecture moved beyond basic shelter and became a place of self-expression. Throughout the 19th century, builders' pattern books provided concrete plans and models for purchase in various fashionable styles and revivals (Benjamin, 1969). *Queen Anne cottages, Shingle-style bungalows*, and Greek and *Gothic revival* homes were built throughout the land. Ornamented facades and stylistic details were applied to simpler, vernacular or folk residences as means became available (Davis, 1981).

Although prosperity was uneven, several watershed events promoted the international market for design and domestic fashion. In the United States, the 1876 Philadelphia Centennial and the 1893 World's Columbian Exposition in Chicago are benchmarks in a series of 'fairs' that created the consumer culture and an international model for 'the good life'. Regional events such as the 1894 San Francisco Midwinter Exposition were early manifestations of the contemporary 'global village' construct, presenting models of domestic life based on Japanese as well as American products, ideas and designs. For these special events, merchants displayed foreign commodities in *tableaux vivants* that included reconstructed models of ethnic homes and villages complete with folk-costumed natives. The *aesthetic period* in the decorative arts emerged from the Crystal Palace Exposition in London in 1851, and the 1876 Philadelphia Centennial in the United States (Benevolo, 1977). These events inspired the popular taste for crosscultural expression from Asian, Native American, Middle-Eastern and European traditional arts, and spurred more serious collection of authentic cultural artifacts. The appeal and desire for 'collecting culture' was maximized through newspaper advertisements, merchandiser's catalogues, and the 'ladies' home

magazines, *International Studio*, and other art journals of the day, which communicated 'good taste' in the decorative arts. These serials promoted the acquisition of culture through exotic goods, sometimes interpreted through the romantic Arts and Crafts perspectives of British Victorian culture, and marketed the eclectic taste of the era to aspiring American homemakers (Hosley, 1990; Sato & Watanabe, 1991; Trapp, 1993).

The mainstream Victorian culture and its American counterpart were centered on an idyllic vision of the home which was generally attainable only by white middle class professionals at that time. For these clients, the work of designers like Owen Jones, architects H.H. Richardson, McKim, Mead and White, Ralph Adams Cram, Frank Lloyd Wright, Greene and Greene, and Bertram Goodhue reflected the artistic synthesis of the global art heritage that was revealed in the fairs and centennials. Both Wright and the Greene Brothers were affected by the 1893 Chicago World's Fair, and incorporated this aesthetic sensibility of the reconstructed Japanese temple *Ho-o-den* into their own designs (Francis, 1987; Lancaster, 1963). Innumerable Arts and Crafts artists and architects contributed to the aesthetic vitality of the period, creating an international and eclectic feast of domestic possibilities that led the way for other designers and builders to follow (Scully, 1971). This potential was brought to the common man through the builder's pattern books, and by idealistic designers like Gustav Stickley, who exalted the simple life and designed affordable homes and furniture for all (Stickley, 1909). The Arts and Crafts movement was widely publicized through his serial *The Craftsman*, helping to expand and influence the broader 'home' market. Stickley's idealistic visions of the simple life merged into a popular wave of construction of *bungalow* homes across the country, for every level of taste and price (Winter, 1980).

The number and variety of domestic architectural styles and revivals in America is overwhelming, but outstanding guidebooks provide overviews and timelines of this heritage (McAlester, 1984). Recent texts follow new living concepts in *co-housing* (Burge, 1997), and the development of "new urban" towns such as *Seaside* in Florida (Campbell, 1997; Katz, 1994). It is also important to make available images of urban apartments and row housing, multiple-family projects and tenement buildings that are the very real and legitimate 'homes' for many American children (Ringgold, 1991).

Strategies for tracing family home histories

How can we help students develop an aesthetic consciousness of architecture, a sensitivity to the legacy of the built environment, and their own relationship to history and 'place' in the world? While there are different ways to approach this matter, we may build upon students' memories, family histories and photo caches, to begin to give shape to individual visions and perspectives. In the long-established curriculum of the primary grades, units on 'me', my family', 'my home,' and 'my community' provide an existing foundation to support children's constructions of home. Recent interest in geneological research has created a popular response in the search of family 'trees' and networks that can be linked to place, through the history of houses and family migra-

tions in an interdisciplinary classroom context (Light, 1989; Weitzman, 1975). In developing a methodology and sequence for this inquiry, one can perhaps begin in a concrete form with an orientation to the built environment, through a literal 'walk around the block' (Graves, 1991), or by 'stepping outside' in one's own community (London, 1994). These activities can and do begin in kindergarten, but they rarely apply to a focused curriculum on the built environment, or use the language of forms or vocabulary of architecture. Even young children can have fun collecting family facts and photos, beginning a deeper investigation into their personal history of 'home,' through the towns, streets and residences of their ancestors. These first stages can be adapted to almost any grade level, and an active part of this study should include freehand drawing of residential buildings, or of neighborhood vistas and domestic details as seen through a viewfinder. Artists' images of houses, structures, town and cityscapes (Sheeler, Hopper, O'Keeffe, Sloan, Steichen, etc.), can be brought into a discussion along with children's artwork and photos. Occasionally, one may find artists' books that convey a special sense of architecture and space (Erickson, 1989).

Early in this process, class discussion of students' original roots should be accompanied by a mapping exercise, both on a national or global scale, and regional and local survey maps, if possible. Many students have some idea of a 'state' or city of origin if they have relocated, and recent text-based and electronic resources can expand students' access and mapping of their past. A timeline exercise can be developed with photographs of building types and styles, derived from students' own sources matched with other drawings and photos. Architectural surveys, pattern books, and field manuals (McAlester, 1984; Scully 1971) can help to identify styles through structural details and situate houses within period timelines or regional forms .

Although children are generally not able to access documentary records on their own, teachers and parents may assist them, and architects, builders, and historians can be invited to the classroom to help students visualize, discuss, design, and construct facsimiles of their own homes or residences. Upper elementary and middle school students and teachers can create interdisciplinary units that combine a Writing/Research/Social studies project with the study of student's architectural heritage. In planning a letter-writing campaign using either traditional or electronic mail, teachers can tap into the educational function of public and even private records-keepers, who often respond to school requests. Many towns and cities in the United States have historical societies, and even designated town historians, who will answer requests, and perhaps visit the classroom to introduce such a project. If school excursions are possible, local libraries, historical societies and often antique shops can yield an archive of inexpensive but collectible books and antique post cards showing views of older homes or streetscapes.

Regional newspapers and magazines maintain databases that cite building and renovation permits and projects which can be accessed on microfiche at libraries and sometimes on-line. Old city and town directories record residential as well as business listings, as do social registers, 'blue' books, church records, grange organizations, and professional and community associations. While the names of these organizations and affiliations may vary, they may be located through libraries, historical societies, tele-

phone directories, or the Internet. Major genealogical sources such as the Mormon Church Family History Centers, the New England Genealogical Society in Boston, or the Essex Institute in Salem, Massachusetts, can sometimes aid in searching places of family origination, along with kinship networks. Archives of historic preservation organizations, and major photo archives, such as that of the Library of Congress, or the Society for the Preservation of New England Antiquities (SPNEA) in Boston are becoming more widely known and utilized.

Some publishers cooperate with local historical societies in the publication of old photographs of their holdings, which can be accessed through that town's library. One example is the *Images of America* series by Arcadia Publishing of Dover, New Hampshire, which has published photographic books for over 200 towns in the United States to date (Turino & Schier, 1996). Other publishers of architecture and art education resources, such as Dorling Kindersley of New York, NY; Davis Publications of Worchester, MA; Crizmac of Tucson, AR; or Crystal Productions of Glenview, IL, have a range of built environment and architectural titles for K-12 education in text, video, and electronic formats. Catalogs are available from those sources.

Drawing Out the Architect Within

While built-environment educators may situate the knowledge of architecture in cultural or historical studies, they should communicate the aesthetic, perceptual and technical skills needed to appreciate and produce good design. Interdisciplinary projects can be designed in ways to allow students of different learning styles to interpret knowledge through hands-on experiences, to further develop and synthesize their ideas and images of residential design. A built environment curriculum with an emphasis on the development of drawing skills would certainly include a focus on rendering texture, value, space, balance, proportion, line, form, and perspective. Architecture and the built environment can provide opportunities for manipulation of solid, void, or contiguous spaces, the study of light, or rendering of planes and masses. The practice of drawing a still life can extend to architectural details in odd corners of old homes, and viewfinders can generate 'windows' on the community. Such works on paper can exist by themselves, or as preparatory sketches for mixed-media projects or schemes: installations or site sculpture, architectural landscapes, overlays on regional or national maps, or digital art works.

Classes in ceramics or three-dimensional art can build models of real or imagined homes (referencing Han Dynasty tomb models), create mosaic reliefs, or construct townscapes in clay or modeling materials. Such tactile and kinesthetic activities can engage young children's physical and sensory capacities, and aid comprehension of issues of load, compression and stress in load-bearing walls, arches, buttresses (Wilson, 1988). Some games or "toys" can help children develop structural concepts, like the Froebel Blocks that influenced Frank Lloyd Wright. Blocks can be purchased or made from wood scraps, prefabricated and interlocking building components, emulating structural models from post-and-beam construction to geodesic domes. An increasing number of electronic CD-ROMS and games (*Sim Town, Sim City 2000, Civilization II*) simulate the complexity of urban design and planning, and the inter-

dependency of the built environment with economic and environmental factors. Hopefully, there will be a greater emphasis on aesthetic issues and design scenarios for young learners (*Fun with Architecture*, Voyager, 1997).

The Web and Computer-Based Technology

The once esoteric and scholarly endeavor of architectural history has been aided in the last few years by the wealth of information that is on-line, and therefore accessible to educators and students through school networks. Perhaps the most successful research project can be undertaken in conjunction with new technology resources and the World Wide Web. Students and faculty can now design and execute sophisticated projects from a classroom or laboratory computer, drawing upon the networks of electronic resources. Moreover, each student can engage in an independent research focus, and the diversity in their backgrounds, states, or cultures of origin will only add to the learning process.

Many websites (Appendix) actively include architectural records, photographs, museum exhibitions, and studies that aid built environment education. Education and government sites and local historical societies now on the Web provide detailed information and site-specific research possibilities. Some sites provide interdisciplinary lesson plans for teaching about architecture and historic places. The National Park Service, in collaboration with the National Register of Historic Places, currently has 369 teaching units online, utilizing specific National Landmarks and Historic Sites as a focus for investigation into significant events or periods in American history. ArtsEdNet, the Getty Center for Education in the Arts on-line site, provides a unit plan on 'Spaces and Places.' University sites often mount research projects, course materials, and even college lecture outlines (!) that can be accessed by high school students following links under keywords such as *architecture*, *buildings*, or *vernacular*, or by typing a particular architect, style, period or site under study.

While World Wide Web-based resources provide an unprecedented new opportunity to trace and gather research data, teachers should help students maintain a focused investigation, to avoid distractions, or waste of valuable on-line time.

Conclusion

Using an interdisciplinary approach that combines Social Studies, Architecture, Art, and Computer Technology, we can expand students' awareness of the built environment as a dynamic model that is transmitted through culture and chosen-by-design. Critical thinking and cognitive techniques such as mapping and the design of an investigative research strategy can bring students' personal knowledge, family histories, and experience of place into association with historic or stylistic timelines, the evolution of social and cultural change, and their relationship to identity and artistic development.

We need to convey the idea that our concepts of 'home' are complex, culturally constructed environments laden with values and assumptions. As contemporary social projections favor mobility, a changing workplace, and alternative family structures

over tradition and security, we might help students generate personal narratives of 'home' in an increasingly transient society. This constructive process can be 'unpacked' by students' investigation into their own family legacy, the place they call home, its relationship to the designs and values of their family and the larger society, and to their own emerging ideals, dreams, and designs for the future.

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About the Author

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APPENDIX

World WideWeb Sites for Built Environment Education

American Institute of Architects: (http://www.aia.org)
Australian National University Aboriginal Studies WWW Virtual Library:
(http://coombs.anu.edu.au/WWWVL-Aboriginal.html)
Beverly (Massachusetts) Historical Society:
(http://members.tripod.com/~Beverly.HS/index.htm)
Cornell University: (http://www.preservenet.cornell.edu/pnetlink.htm).
Getty Center for Education in the Arts:
(http://www.artsednet.getty.edu...Net/Resources/Sampler/b-intro.html)
Historic American Building Survey:
(http://www.cr.nps.gov/habshaer/habshome.htm)
Library of Congress: (http://www.loc.gov)
National History Day: (http://www.historynet.com/NationalHistoryDay)
National Park Service: (http://www.cr.nps.gov/home)
National Register: (http://www.cr.nps.gov/nr)
National Trust for Historic Preservation: (http://web.nthp.org)
Smithsonian Institute: (http://www.si.edu)
World Heritage: (http://www.nps.gov/crweb1/worldheritage)

ART AND THE BUILT ENVIRONMENT: A FRAMEWORK FOR SCHOOL PROGRAMS

Eileen Adams
Middlesex University , Bretton Hall and South Bank University

Art and the Built Environment (Adams & Ward 1982) was a research and curriculum development project in the United Kingdom in the 1970s and 1980s which created links between art, design, and environmental education and developed ideas, learning methods, and teaching strategies for students from 5 to 18 years old. These have now been incorporated into the National Curriculum within a range of programs, including Art and Design, Design and Technology, and Environmental Education. The learning and teaching methods have been tested in different settings. This chapter provides teachers with a framework of ideas and strategies to enable them to structure their own programs.

The Role of Art in Built Environment Education

Built environment studies enable students to understand art as a way of seeing, a way of understanding, and a means of shaping ideas which will help create the environment in which we live. They enable them to become more aware and appreciative of their surroundings and develop a sense of place. They aim to enable them to view buildings and urban spaces with an informed and critical eye and help them understand the influences on the design of the built environment. The long-term aim is to enable young people to participate in shaping their environment in the future. It encourages different ways of seeing, the view of the artist, the critic, and the designer. Here, art is not a romantic escapism from the harsh realities of life, but a means of engagement, participation, and creation.

Environment as an Educational Resource

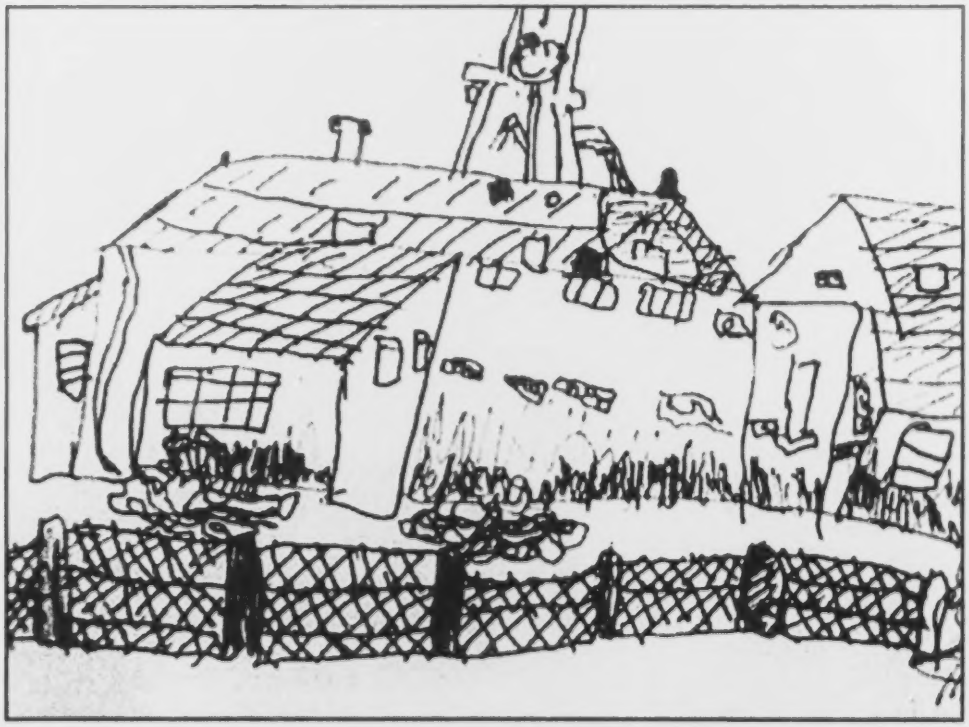
Direct experience of the environment forms the basis of the work. The local environment is a rich and varied resource, infinite in possibilities for study, constantly available and easily accessible. What gives a place special character or what makes it the same as everywhere else? Environmental studies explore relationships between structures, spaces, and people.

Students might attempt to view their neighborhood from a particular perspective. Is their neighborhood a good environment for children? Could it be made more child-friendly? Could it be more ecologically friendly? What is it like for older people to live there? What could improve the attractiveness or the safety of the neighborhood? How would a prospective buyer view the real estate opportunities? Are these differing perspectives or are there some parallels? What are other perspectives or other ways of viewing the same neighborhood?

Classroom Activities

It is important to have secondary source materials for students to be able to make comparisons of different built environments and the same environment over time. Not only books, but also videos are important here. Images of landscapes and townscapes, as well as history of the architecture, can be collected by the students themselves from magazines, in the form of cuttings and photocopies as well as postcards and posters. Over a period of time, photographs and slides can be taken by students and teachers to build up a reference collection for the school. These will create a valuable resource for exhibitions and slide programs.

Figure 1
Observation. *House,* drawing in pen, 9 years.



Artwork

Artwork focuses on the aesthetic and design aspects of environmental study. Artwork stresses the importance of visual language and spatial understanding. Used as a medium for *perception,* involvement in art activities enables students to explore, observe, record, interpret, and analyze their environment. Used as *expression,* art enables them to communicate a personal, emotional response to place. Artwork is possible in a variety of media, including drawing, painting, printing, photographs, slides, photo montage and collage, sculptures, constructions, and models. Students can explore ideas such as the dynamics of space, investigate the presence of natural form in an urban setting, analyze facades in terms of solids and voids, record silhouettes against the skyline, or trace the movement of people in a particular place. The possibilities are endless.

Some artwork will be poetic or lyrical. Other approaches might adopt a documentary style and use reportage as a medium of expression. Certain art forms can be more challenging or disturbing, obliging us to confront environmental issues. Perhaps some art forms try to persuade the viewer to a particular point of view. The work of other artists, painters, sculptors or photographers, can offer a stimulus, when students try to "see" the environment through their eyes by emulating their particular styles.

Figure 2
Artwork. *High Street,* lino prints, group work, 10 years.

Critical study

Critical study is primarily concerned with making judgments and the exploration of values. Art education is of special significance here. It develops skills of connoisseurship, creating links between words and images. It requires students to work in groups, to compare and contrast their ideas, to formulate views and test out their opinions through argument and debate. It helps them develop their capacity for judgment, requires them to collect and weigh up evidence, to explain or justify their opinions (Eisner, 1976). *Space* is a difficult concept for students, yet it is one of the most important elements in creating a townscape. Some of the associated questions are: How is a space created? How is it contained? How is it divided? How is it used? For what is the space used? What functions does it serve? What are the criteria which should be adopted to make an appraisal of spatial quality? What is important to consider? What impact do certain spaces have on us? And how does the presence or absence of people affect them? How does an anonymous space take on the character of a particular place?

Students will need to collect evidence through observations, annotated sketches, photographs, and interviews. Critical studies require students to share their ideas, to discuss and argue about different viewpoints which represent different values. They

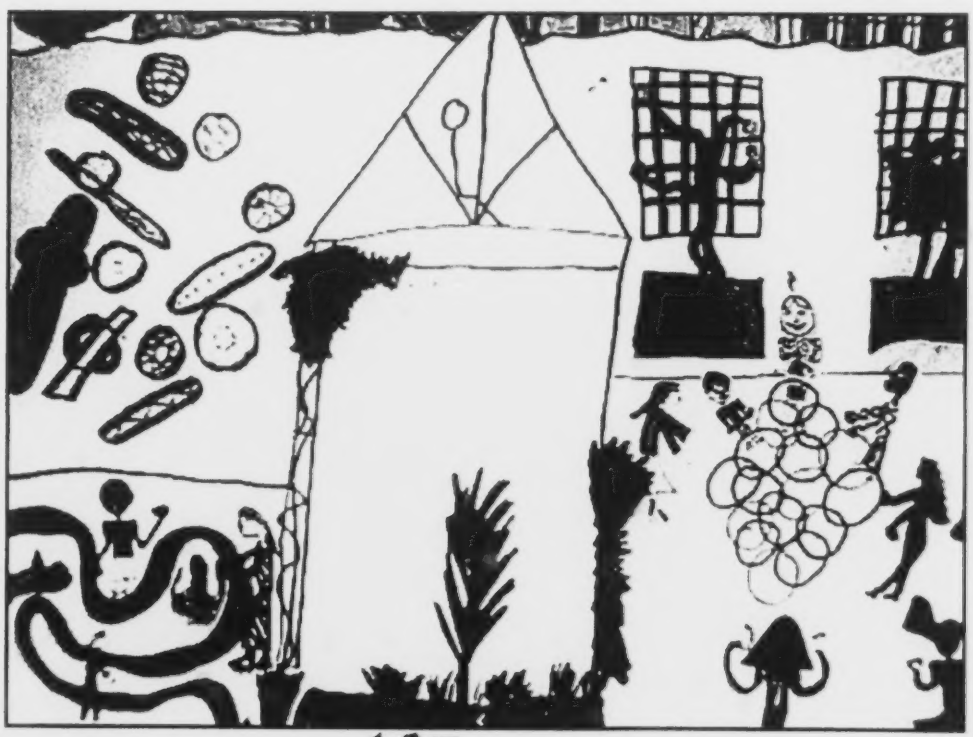
Figure 3
Critical study, *House Front*, pen, 10 years.

will need to compare their findings and show evidence of their investigations. They will have different opinions about the value of particular townscape features. Through comparing their findings with others, they learn to explain and justify opinions and perhaps persuade others.

Urban Design Activity

Underlying all the work is an appreciation that the environment is constantly changing. Change is the only certainty we have, the only thing of which we can be sure. How can we deal with the experience of change positively and creatively? What will towns and cities be like in the future? Design offers a way of anticipating the future, imagining it, and making it real. Urban design is primarily concerned with how we shape and control the environment, about how we anticipate and deal with change. In urban design studies, the emphasis is on developing students' capacities to conceptualize, devise, and create places. Speculative and propositional thinking are required, involving hypothesis, supposition, and imaginative projection where students consider alternative or future urban design possibilities. Imagination is used to confront and create the reality of the built environment. Invention and innovation are the result of creative thinking. Designing places creates not only experience of plan-

Figure 4
Design, *School Playground,* paint, 9 years.



ning ahead, but also provides a vivid insight into the complexities of any decision-making involving people with different values, different points of view and perhaps conflicting agendas. Involvement in urban design activity helps to develop appropriate strategies to address conflict resolution and accept compromise.

Presentation

Students can present their work to their peers or in more formal critiques with parents and professional urban designers by means of verbal presentations, exhibitions, booklets, or video. Their concern should be both with the content of the ideas and the form of the presentation. The need is to have something interesting to say and to use strong visual techniques for effective communication. Key questions need to be "what do I want to say?" and "how can I say it?".

Small-scale, frequent critiques are necessary during works-in-progress. Teachers will choose the right moment to invite students to report on their thinking so far and use the opportunity of a pause for reflection, perhaps to clarify the objectives of the study, explain vocabulary, to challenge assumptions, or praise good work.

Presentations at the end of a project are perhaps more formal. The art and design work should present evidence of students' thinking. Their comments should illumi-

Figure 5
Critique, *Presentation,* 9 year old students present their work.

nate and justify their thinking. The experience of visual presentations with an adult audience will give the work an added importance and promote high standards of work. It is important that young people are able to connect their experience in school with adult concerns and the outside world.

Taking Action

The work does not stop at making images or designs or even discussing the relative merits of various schemes. Students have taken their ideas further and put them into action to change their environment (Adams, 1994). The school is a good place to start. The work evolves from developing a new awareness of a familiar environment, then proceeds through the various stages of critique and design activity to proposals for change. These are debated by students and staff, and if accepted, an action plan is agreed. The next stages need to be fundraising and the preparation of the technical plan for contractors.

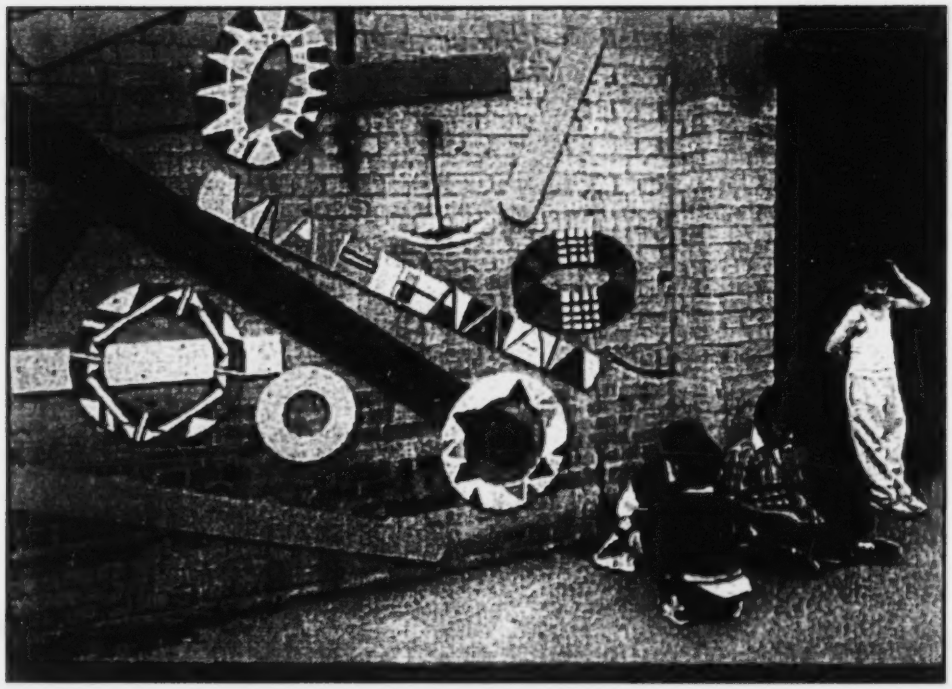
Students can be involved in some of the development, such as tree-planting schemes and other landscaping activities. However, earth-moving, paving, and the installation of play equipment and building structures are generally undertaken by those with specialist knowledge. However, students can benefit from monitoring and documenting the process of development. The value of work in school grounds is that it is not merely an exercise, but a real live example of awareness into action. Students understand that art and design is not just drawing pictures, nor doing just what you feel like. It is not an easy option. It is a challenging and exciting activity, demanding careful thought, informed understanding, and a high degree of skill. Realization of their ideas in real life gives learning new meaning and relevance.

Taking action need not mean only changing the environment. It can also mean sharing one's own perceptions and views. Taking action can also mean changing people's perceptions of the environment or their behaviors towards it, in the same ways that artists have influenced how we view the environment and designers have decided how we should use it. Many teachers have not been trained to deal with environmental design. However, from time to time, they might like to invite art, design, and environmental professionals such as artists, architects, planners, and landscape architects to assist them to develop built environment studies. They can contribute ideas for study and, study techniques, help arrange visits, identify information and resources, and support students, particularly in the design phase. They can also help students critique their work and set it in the context of professional practice and real-life experience.

Conclusion

Using these strategies, students build up a body of knowledge about the environment, about the nature of art and design, about ways of thinking and doing things embodied in these disciplines. The skills developed by the work cover a wide spectrum of achievement. They include, for example, those related to the development of perception and observation, the capacity to analyze, categorize, and synthesize, the ability to

Figure 6
Taking action, 9 year olds' ideas are put into effect in school grounds.



establish connections and relationships, to make judgments. The development of both a visual and verbal language in critical study underpins the development of visual literacy.

Urban design activity develops capacities to hypothesize, imagine and anticipate change. The capabilities which are developed from the complex interaction of knowledge and skills can of course be invested in the development of art and design work. They can also be applied to a range of subjects and can transfer to other settings (Slafer & Cahill, 1995). These, in combination with the positive attitudes towards exploration and experimentation which art and urban design engenders, provide a basis for life-long learning.

Role of the teacher

Teachers need to be enthusiastic and able to share their knowledge. Above all, the teacher needs to demonstrate the model of the good learner, showing students *how* to learn. This emphasis is important. The teacher's professionalism is invested not only in subject knowledge, but in being able to convey convincingly the techniques and

Figure 7

Framework for Planning

Pupils:	Age? previous experience? Number in class?
Objectives:	What do you hope students will learn?
Planning:	How does the project fit in with the syllabus?
Resources:	What will you need as reference materials?
Introduction:	How will you motivate, engage and excite students?
Streetwork:	How will you organize the investigations out of doors?
Classwork:	How will students develop their ideas?
Materials:	What materials will they need?
Artwork Critical:	What kinds of artwork will be appropriate?
Study Design :	How will you support critical study?
	How will they learn about other artists and designers?
Design Activity:	How will they engage in the process of formulating proposals for change?
Presentation:	To whom will they communicate their work?
	How will the critique be managed?
Evaluation:	What outcomes do you hope for?
	What evidence will you seek?
	What will be your criteria for evaluation?
	How will students learn to evaluate their own work?

strategies which will result in young people being able to make sense of their experience, think more effectively and take appropriate action.

Evaluation

The best kind of evaluation is self-evaluation, but how might students be helped to develop a self-critical stance? They need experience of how to evaluate work and understand what is being valued. Criteria for assessment need to be made clear, and if possible, negotiated with the students beforehand, so that when they are doing a piece of work, they know what they are trying to achieve and why. They need to consider both the content of ideas and the form of expression. What ideas are they exploring, investigating, and developing? How well are they able to communicate these to other people? These need to be worked out ahead and along the way with students. The self-evaluation should be an on-going process which involves the students, not

something "done to" the student by the teacher. Students become life-long learners and self-evaluators.

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Author Note

In the National Curriculum in England and Wales, art is compulsory between the ages of 5 and 14. From 14 to 18, it is elective. All the examples of work have been done as part the normal curriculum in state schools.

About the Author

Eileen Adams is a Visiting Academic at Middlesex University and holds Research Fellowships at Bretton Hall, College of the University of Leeds and the South Bank University in London, England. She is well known for her research on *Art and the Built Environment* and *Learning through Landscapes*. She lectures and writes on art, design, and environmental education. Recent publications include *Changing Places: Young People's Participation in Environmental Planning* and *Public Art: People, Projects and Process*.

CURRICULUM EVALUATION: ONE APPROACH FOR ASSESSING BUILT ENVIRONMENT EDUCATION IN THE CLASSROOM

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Center for Understanding the Built Environment, Kansas City, Missouri

CUBE (The Center for Understanding the Built Environment), a not-for-profit organization located in the midwest, began its efforts in built environment education over 25 years ago. Its activities gradually have evolved into a broader spectrum of programs which now may be called community-based education. The purpose of this chapter is to discuss the connection between community-based education and art, the results of a study that identifies methods to integrate built environment education into the classroom, and, finally, what happens in a community when students are involved in real-life learning or community-based education.

Defining *built environment*, a term easily used by those in the design professions, and unknown to most others, is the first step in understanding what it is and what is encompassed in built environment education. The *built environment* can be defined as the study of any place where humans have intervened, by design or accident, in the natural environment. This definition includes all of the contextual matters which affect that intervention: geography, history, economics, politics, religion, ecology, and a myriad of other topics which noticeably overlap with what academia defines as "core curriculum." Therefore, the purpose of built environment education is to establish a basic knowledge of these matters and to take citizens to a higher level of awareness, where they will understand and actively participate in the development of quality built environments. In the broadest sense, this means cities which work for adults and children; buildings and open spaces which are healthy and aesthetically pleasing; and streetscapes and landscapes which reach to the future while celebrating the past. The totality of this effort is an essential understanding for educator or administrator.

For many years, multi-interest organizations have been concerned with educating the general public about those issues which affect community planning and design. For the design professions, a challenging paradox was the fact that although their edu-

cational institutions graduated ample numbers of practitioners to carry out good planning and design principles, the expected healthy communities were not developing. The general public was not cognizant of the benefits of design and planning; they did not know *what* to ask for or *how* to ask for it. It was obvious that a broader audience had to be educated about the benefits that good design fosters in creating healthy communities.

A number of these organizations have initiated a new strategy—to "bring up" the educated audience, starting with youth, to be sensitized and made aware of the challenges of the built environment. Although the nomenclature varies, when queried, all tend to have a common goal: determining better ways to produce a community environment which supports the well-being of all people. Design and planning is the underlying principle. The terms and organizations are:

- *built environment education*: The American Institute of Architects and American Planning Association
- *heritage education*: The National Trust for Historic Preservation
- *environmental education*: environmentalists
- *community-based education*: Canada and recently, the United States
- *patrimoine educacione*: the French
- *conservation education*: the British

Interestingly enough, American educators equate "built environment education" with "cultural awareness" or "cultural literacy." (See other chapters in this book for examples of usage.) Unlike their counterparts in Europe where heritage education is mandated, Americans seem uncertain about the full content of community-based education.

Historically, all of these organizations have provided basic activities or projects which led to a greater awareness of the built environment, whether it was a resource book, a lesson plan, or actual participation in the classroom. However, as the years went by and the discernible effects or improvement of the environment did not seem to be keeping pace with the destruction or ill effects, some organizations began to examine alternatives or extensions that would accelerate the desired results. The natural next step was community-based education, where the learning goes **beyond** skill development, community outreach, or educating youth, to taking responsible action in the community.

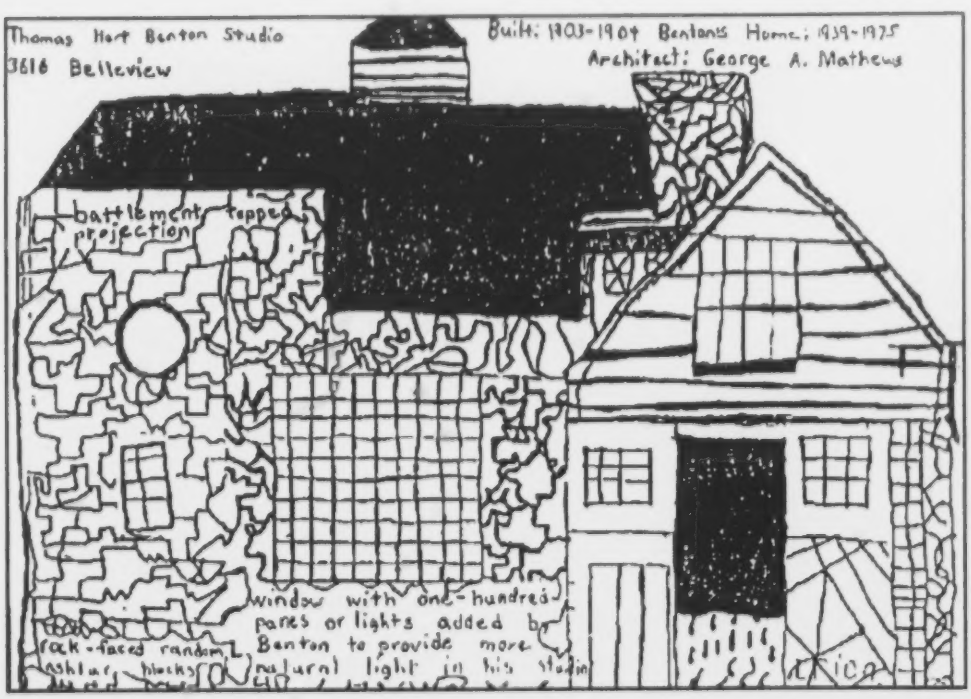
Over the years, a successful collaborative model has evolved which brings together students, educators, public officials, citizens, and cooperatively planning appropriate solutions. Not only does the collaboration assist consensus-building within the community, it also spreads awareness and sensitivity beyond the design professions to the broad population base, which is needed to bring about an improvement in the ways that communities work.

The Culminating Activity

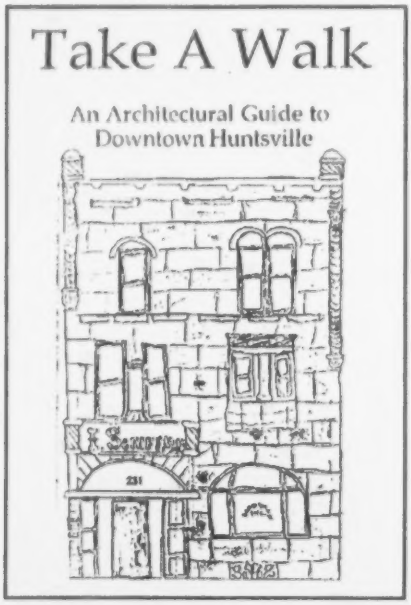
What is the project that can bring about a "better community?" What is the task that is so compelling that students will take charge, take risks, speak out for their beliefs, and give back to the community? There are many solutions and they are always based on the needs of the community. They involve a collaborative effort on the part of the educator and the students and, oftentimes, appropriate persons and organizations in the community. Some of these successful projects are documented here. Many materials are available through the Center for Understanding the Built Environment (CUBE) Resource Center and Library and the archiSources catalogue. See Author Note.

Calendars. All over America, students have created calendars that document important buildings and landmarks; the illustrations and text stress technical terminology and historic detail. Other calendars showcase people who have played important roles in the community, especially those who have provided leadership in design and planning. A strong intergenerational component occurs when students go back into the community for interviewing, when they promote their projects on television and radio, and when city officials receive these products and realize that the youth care about their city (see Figure 1).

Figure 1.
Elementary school children's calendar drawing.
(School PS1)

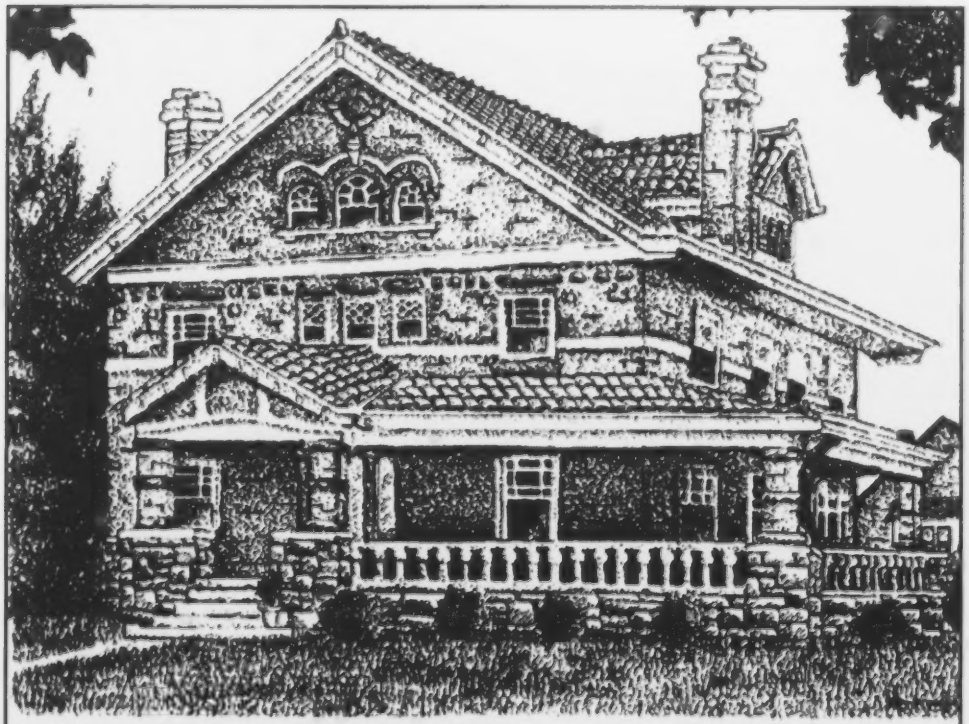

Thomas Hart Benton Studio
3616 Belleview
Built: 1903-1904 Bentons Home: 1939-1975
Architect: George A. Mathews
battlement topped projection
window with one-hundred panes or lights added by Benton to provide more natural light in his studio
rock-faced random ashlar blocks

Walking tours. Students in Huntsville, Alabama, prepared and conducted architectural walking tours of various neighborhoods. They used their documents to compose a handbook, then printed it on their own printing press (Kids Architectural Press, 1966) (see Figure 2).



(Left)
Figure 2.
Huntsville students produce walking tour brochure.
Instructor: Carol Kamback

(Below)
Figure 3.
Magnet school art students create pen-and-ink drawings for book.
Instructor: Harriet Bigham



Frederick H. Meyer Residence, 1917-19

Landmark book. A magnet school art class in Kansas City, Kansas, produced a book with the help of the instructor, financial backing from the city, the state's art commission, and cooperation from community businesses. *Gift to the Future* (Bigham, 1988) contains pastel and black-and-white drawings of landmark buildings in the city, thus heightening citizen awareness of the beauty of the community (see Figure 3).

City guides. Students in Vancouver, British Columbia, Canada, assumed the role of city ambassadors during one summer, escorting visiting dignitaries and others through the city to explain its characteristics. Their research, knowledge of the city, and growing understanding and pride in the city have helped them complete many community-making goals, such as extending tourist appreciation of the architecture and input into planning of Vancouver neighborhoods as well as the production of a tour script and background research, which will be used by a variety of organizations.

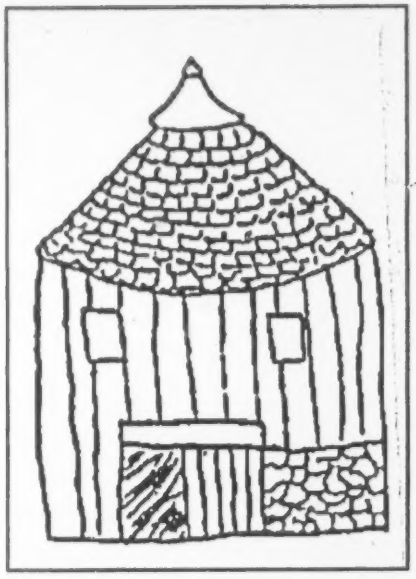
Adopt a building. Stilwell, Kansas is a rural community southwest of Kansas City that is rapidly becoming urbanized. Students living in the Stilwell area became concerned about an old round barn slated for demolition and replacement by a parking lot. They documented their concern with a slide show, conducted walking tours in the community, and wearing handmade silk-screened tee shirts bearing the round barn image, they visited the city council. The youth and city council reached a cooperative solution: the parking lot was built, but the barn remains within the environs, a visual reminder of the children's investment in their heritage and community (see Figure 4).

A second example of the "Adopt a Building" project involves historic Union Station, located in Kansas City, Missouri. For over two decades, students in metropolitan Kansas City have participated in an effort to raise consciousness regarding Union Station. They have written about it, sung about it, painted and drawn it, and, finally, along with others, have assured its future as a science museum. Recently, art students designed and made posters telling about the building and the drawings appeared on billboards. Other students researched the neighborhood and told about its importance on local radio and television shows. A third group appeared before a government body with a slide show and commentary.

Community-based education includes the mastery of skills and also the development of attitudes and expectations related to the individual's responsibility for contributing to the quality of community life. When students have visual evidence of their efforts, it creates a powerful motivating force for their continuing involvement in community affairs(see Figure 5).

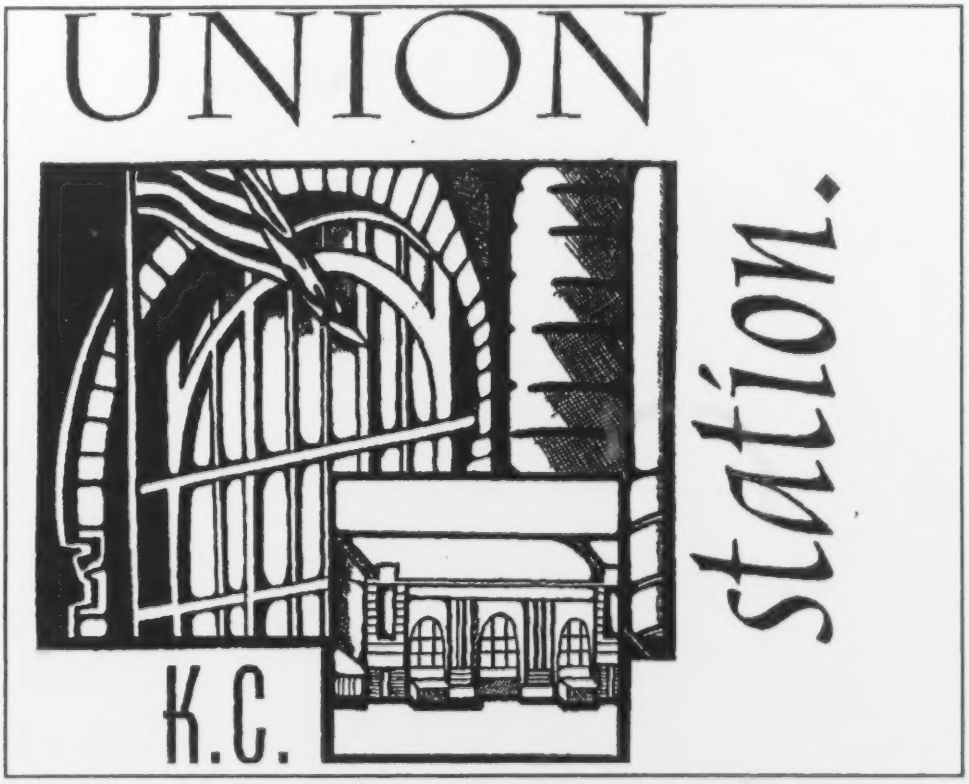
Box City: An interdisciplinary experience in community planning. One of the most compelling of the community-based activities available through CUBE is *Box City.* In the central activity, students make buildings out of boxes and then, through roleplaying, determine the plan of the city. Through this three-dimensional process, students come to thoroughly understand the actions they must take and the knowledge they must have in order to act responsibly as decisionmakers. Variations of the *Box City* process have helped implement formal community-wide planning processes for schools, community centers, beautification projects, and youth centers.

Box City participants begin by re-creating their own city, perhaps even in historic phases such as pioneer city, late 18th-century city, pre-World War II city, and so on.



(Left)
Figure 4.
Students silk-screened the round barn image on tee shirts.

(Below)
Figure 35
High school art students create Union Station poster



The process is so engaging that the students typically build and rebuild, struggling to create a "better city." The strength of the *Box City* exercise begins to really take effect as the local mayor, city council, or city planning committees are invited to speak, participate, and critique the student work. Quite often, as a result, these same knowledgeable students have been asked to advise the city in their current planning efforts. And, when city officials see children learning and struggling efficiently with problems that have troubled planning professionals for decades, they realize they can adapt this technique for their planning efforts with adults. A recent nationwide planning effort involved collaborating agencies in seven cities: In each city, the Metropolitan Energy Commission, the Environmental Protection Agency, and neighborhood associations utilized the hands-on process over a period of 5 weeks (see Figures 6 and 7).

With this understanding of community-based education theoretically and as demonstrated in classrooms, it is pertinent to examine its relationship to the arts and to the curriculum in general.

A Place for the Arts

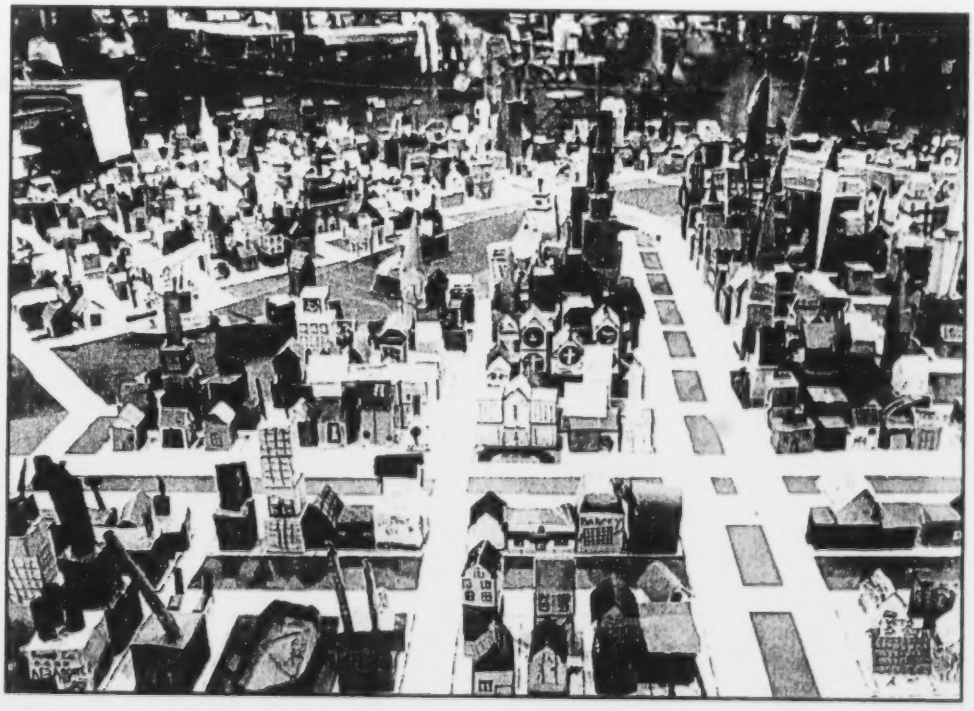
For organizations and individuals who want to make the greatest impact possible with community-based education, there are new ways of doing things, as well as a number of challenges related to curriculum and assessment. Education providers charged with implementing built environment education also face many issues which revolve around arts education: the general ambivalent attitude toward arts education; the limited amount of time devoted to arts education, and the necessary integration of the arts in the study of the built environment.

There continues to be widespread misunderstanding of the value of the arts and, in many cases, a defensive attitude toward them. A pragmatic approach to this continuing obstacle is to "partner" the arts with established curriculum in other disciplines. For this reason, CUBE's production team for *Walk Around the Block*, CUBE's resource for community-based education, intentionally eliminated the arts as the leading curriculum component. The team examined the objectives of the core subjects to determine what **other** curricular areas were most closely aligned with the goals and objectives of built environment education. They found that every skill and curricular area was touched by community-based education, but the most natural match or congruence occurred with social studies. In addition, built environment education addressed and reinforced multiple intelligences and could be taught at all grade levels.

Unlike the arts, most people readily understand their personal connection with the built environment: they live in a house, work in a building, and commute or travel on roads created by tax dollars, their dollars. Furthermore, the economy of a region quite often depends on the unique historical or geographic quality of that community. Because of this real-life connection and its parallel to social studies curriculum, the community-based education model initially is accepted more easily by administrators and more readily embraced by educators. Once in place, the power of design is understood in relation to community elements. Then, the truly integrated teaching day—with

Figure 6 (above)—Graph paper provides grid for box buildings.
Photographer: Skip Brown.

Figure 7 (below)—Box City at North Park Shopping Center, Dallas, Texas.
Photographer: Willis Winters.



the arts as an exciting, energizing, and essential part of that entire day—is readily accepted.

In addition to resistant attitudes, there are other reasons to take a broader approach. Many special interest classes in art for gifted and talented students **would** and **do** benefit from built environment education. But, to reserve this area for special learners eliminates the benefits that it has for students of **all learning styles and capabilities**. For the purposes of reaching the mass audience that is needed to make systemic change in thinking about the environment, it is necessary to bring the strength of exposure for more than 40 minutes, which unfortunately, is most often the time allotted for the arts.

A Place in the Curriculum

As community-based education matures, the need to demonstrate how it fits into curriculum becomes more pressing—can the curricular correlatives be defined? Paradoxically, its strength, its strong interdisciplinary reinforcement, is also a weakness. It is hard to categorize. Where does it belong? In the ERIC Digest called *Teaching about the Built Environment*, examples in history, geography, social studies, civics and economics are identified (Graves, 1990). However, school administrators who want or need a tidy compartment must be convinced. It is for this reason, that in 1994, CUBE and the American Architectural Foundation embarked on a 3-year study to examine the following ideas:

1. How are teachers incorporating built environment education into the already-existing specified curriculum?
2. Does built environment education lend itself to different teaching and learning styles?
3. How are educators evaluating the results of their teaching?
4. Is there a process that any educator could undertake in order to prepare assessment tools for built environment education topics, regardless of school, district, or state mandates?

The complete findings of a study demonstrating the integration of built environment education into existing curriculum can be found in the report *An Evaluation of Built Environment Education in the Curriculum* (Center for Understanding the Built Environment (CUBE), 1994). One project that developed as a result of this study is described in the remainder of this chapter.

A Built Environment Project

A number of challenges faced the project. How could a generic assessment process work for all? To speak credibly nationwide, it would be desirable to provide a standard assessment which addresses the wide variety of districting methods and, consequently, a wide variety of approaches to assessment and accountability which exist within each state and district. Four varying test sites were selected representing two states and a rural site, with the goal of representing a sampling of districting methods, as well as curriculum objectives and assessment methods which might be present throughout

the United States. The U.S. education system encompasses a wide variety of districting methods which makes any standard approach difficult. For instance, in Hillsborough County, Florida, the school district encompasses the entire county. In this integrated situation, when a decision is made for one, it is made for all. A contrast is the geographic site of CUBE, the Metropolitan Kansas City area which represents two separate states, six counties, and 40 school districts.

Dissimilar goals create another challenge. State assessment tests, although changing in some cases, tend to focus on what can be measured, i.e., specific content. There is a sizable difference between some Objective Listings and the educational goals as espoused by architects and planners. Certainly, community-based education begins with the development of a knowledge base. But for design professionals, bringing about a civic benefit for all is the goal, not just improvement in test scores. Once the basic knowledge level has been addressed, then there is a move to the next level of education: the application of education to real-life. If we bring participants to the point of caring enough about their community by teaching design and its influence on the health and welfare of inhabitants, then—one hopes—they will embark on responsible actions to take care of it, enhance it, or preserve it.

Project Background

The CUBE project team selected Kathryn Loncar, Ph.D., School of Education, University of Missouri at Kansas City, to serve as consultant to the project. Loncar brought to the project knowledge of whole language teaching and integrated curriculum, as well as extensive work with the training of teachers in schools and school districts throughout the midwest. The immediate task became one of defining key skills using CUBE-produced curriculum materials. Evaluation processes in classrooms would follow.

Diverse Sites Selected

Four contrasting study sites were selected including three Greater Kansas City schools and a cooperative site encompassing both rural and small town locations. A short description of each site follows.

1. **Study Site One** was a fourth grade class in a neighborhood school, located in the eastern part of the Kansas City area, drawing from an ethnically and economically diverse middle to lower-middle class population. The teacher did not have extensive background in built environment education.
2. **Study Site Two** was a primary-level classroom in a neighborhood school located in the southern part of Kansas City with a predominantly white, middle class population. In this particular school, the teachers devised the methods and materials to use in their classrooms.
3. **Study Site Three** was a sixth grade classroom in a neighborhood school of a Kansas City suburb, located within a predominately white middle-class population. The district prescribed the subject objectives. The instruction method was not text-driven or content-driven, but objective-based.

4. **Study Site Four** was an educational cooperative in rural western Kansas. The cooperative utilized a variety of delivery systems including satellite-delivered instruction.

For the project curricula, Loncar selected two resources developed by CUBE, *Walk Around the Block: Using Our Communities in the Present to Learn about the Past and Plan for the Future* (Graves, Graves, Schauber, & Thomas, 1997) and *Box City, An Interdisciplinary Experience in Community Planning* (Graves & Graves, 1997). Loncar was generally familiar with the resources through her teacher training experience which, provided exposure to new and non-traditional materials which teachers were using in their classrooms. Although specific, they generically could "stand for" a number of publications which fall into the category of community-based, built environment, or heritage education materials.

Correlation with Curriculum

An initial task was to identify key skills such as those listed on most state mastery tests. These skills were identified and matched with specific projects in the *Walk Around the Block* curriculum. This type of curricular chart is helpful to administrators who want to demonstrate the match between content and activities. They can feel comfortable about stressing built environment education concepts that are already a part of the curriculum. It is useful for those working with the particular curriculum *Walk around the Block* and *Box City* and also those working with other built environment or community-based education materials. Project team member Schauber comments:

> From the point of view of the resource teacher or overseeing educator, whenever I am working with teachers from the different states or districts, I must familiarize myself with the title of the group of skills known as "learning objectives," "basic competency skills," "program of studies," "curriculum objectives," "essential elements," or "outcomes." Whatever the title, these skills are the backbone of all lessons and activities, no matter which classroom, no matter what grade, no matter which state. As always, teachers must match their lesson objectives with their own particular district's objectives and assessment strategies. Beginning teachers may want to fully define all elements present in their lesson, matching them to their long range plans. (CUBE, 1994, p. 2)

The Challenge of Assessment

When community-based education is successful, it is a process, an attitude, a connection, and a lifelong commitment to the development of a sense of place, which are not necessarily measurable in a one-hour test at third grade. The built environment itself has always been a part of the curriculum, even though not defined as such, and not necessarily taught in the ways known to be most successful—hands-on, experiential and community-referenced. These are ways that provide educators with break-

through, energizing teaching and learning experiences for both the students *and* the educators. It is not only the topic, but the **way** of teaching that falls outside the norm of some classrooms. This way of teaching dictates different kinds of assessment. Schauber explains:

> Assessment is a critical component of any validation of a new curriculum topic, or even a different way of approaching curriculum, i.e., built environment education. There are many forms of assessment. Every classroom assesses differently. If the classroom is objective-based, the teacher's methods will reflect that. The reason assessment has changed, is because of the recognition of the many learning styles of children. (CUBE, 1994, p. 2)

The case studies in *An Evaluation of Built Environment Education in the Curriculum* reflect how varied the assessments can be depending on the personalities of the teachers, the district requirements and the school setting. The study suggested that teachers used a variety of approaches. For example, two sites measured the *volume* of response to pre- and post-instruction tests including a matrix system which evaluated amount of detail contained in drawings in the pre- and post-test. In comparison, the third site measured the *demonstration of knowledge* based upon how well students built a structure cooperatively.

At the fourth site, representing yet another different setting and needs, Debbie Haltom, Director of the High Plains Cooperative, devised the most individualized evaluation. Haltom approached the subject matter by introducing teachers in her cooperative district to the activity called *Box City, An Interdisciplinary Experience in Community Planning.* Students identified building types and uses in the community, created the buildings and green spaces, role-played, placed and determined the plan of the city, and then evaluated the city. Their "buildings" were made from boxes which explains the activity's name.

Haltom began by writing an Individualized Education Plan (IEP) which would take the place of a "Specific Objectives Listing." A portion of it is included here to demonstrate the variety of thinking levels as well as the core learnings involved:

- Locate items on a simple map with respect to their relationship to a specific reference point, using cardinal direction.
- Interpret and plot a course on road and city maps.
- Use the key on a map to locate features such as state boundary, state name, cities, roads, river.
- Increase receptive and expressive vocabulary.
- Give examples of the impact of conflict and cooperation on the development of world civilizations.
- Apply process skills of observing, classifying, spatial relationships, using numbers, communicating, formulating models. (CUBE, 1994, p. 19)

Haltom spoke to the topic of assessment in general. "In looking at various means of assessment, some consider that a paper/pencil test is objective and evaluating a

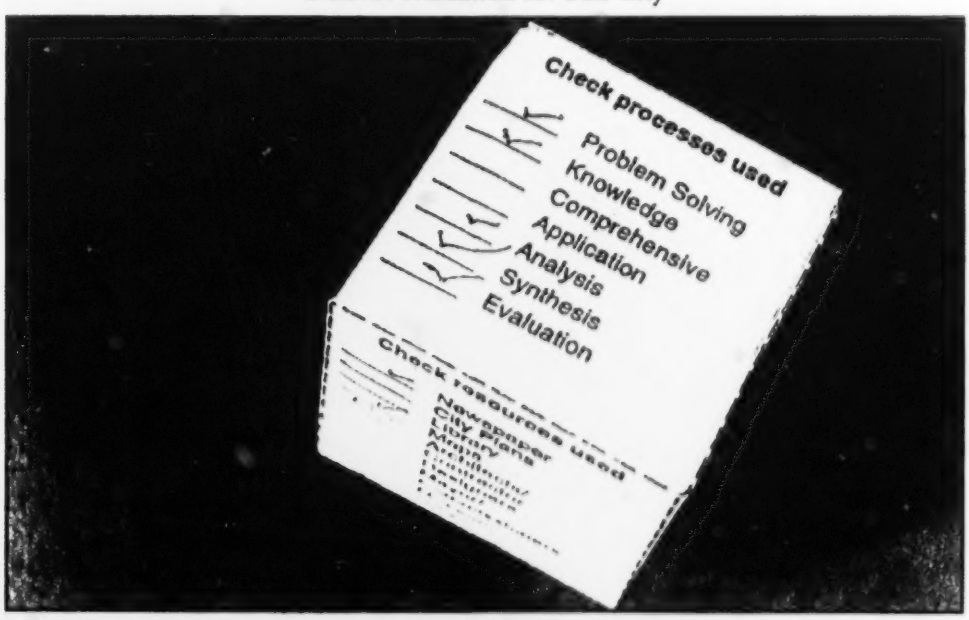
product is subjective. However, evaluation needs to move much more toward product/outcome-oriented assessment. It is more inclusive and tells more about the student than traditional testing" (CUBE, 1994, p. 15).

An example of non-traditional assessment—and perhaps of most interest to art educators—was the assessment solution, i.e., the production of a "box." The completed comments on the sides of the box demonstrated to the teacher the participant's understanding of the project. It was stimulating and fun for the students to use a format which varied from the usual question and answer test, and the new format further helped them to develop their own personalized assessment through their text completion. Haltom amplifies on this method:

> The making of the box or cube reinforces a number of math and art concepts and skills. Students are involved in self-evaluation daily—they need to recognize *at what level* and *when* they are learning. We want our students to be aware of the "aha!" moment when they are learning something new. As educators teach *Box City*, they can have conversations with the students which will bring out the level at which the learning is taking place. (CUBE, 1994, p. 15) (see Figure 8)

The results of evaluation at Haltom's site reinforce the concept that traditional tests and scores do not present the entire or an accurate picture of assessment either for built environment education or for education practices in general. Student gains must be measured in other important ways.

Figure 8.
Student evaluation for Box City



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Conclusion and Comments

At the end of the study period, Loncar concluded that built environment education or community-based education: meets curricular objectives, includes breakthrough teaching strategies and provides strong potential for alternative assessment. Loncar continues:

> In particular, built environment education as exemplified in the *Walk Around the Block* curriculum embodies three important educational principles. First, this curriculum brings children a rich, integrated, interdisciplinary involvement in history, economics, geography, mathematics, language and literature, natural science, and the visual arts. Second, this curriculum requires an inquiry-based, hands-on learning style that develops in children not only basic skills in literacy and numeracy, but also many of the skills and techniques that humans use to manage and apply knowledge in various human endeavors. Third, this curriculum recognizes the social nature of learning by allowing children to function as a member of a "learning community" or "learning team." The incorporation of these three principles in *Walk Around the Block* make this curriculum educationally sound and compatible with current modes of curriculum development and classroom practice. (CUBE, 1994, p. 1)

Loncar reports on the use of change, conflict, and cooperation and their impact on a culture, an inherent part of the *Walk Around the Block* and *Box City* activities:

> In one instance, students created a Greek Parthenon out of a malleable plastic material which could be cut and shaped. Quite often the students cited that the most important part of the project, to them, was the working out of disagreements which took place as they built it. By means of an electric fan, the Parthenon structure could be inflated for story-telling and math projects in the classroom and deflated for storage. The students reflected that the division of labor and collaboration (life skills) were important in other parts of their lives as well. The "transference of skills" is easily obtainable through the approach learned in built environment activities. (CUBE, 1994, p. 2)

Project D.A.R.E., a federal program dedicated to helping students remain alcohol and drug-free, uses a variety of strategies, one of which is the development of conflict resolution skills. When *Box City* is incorporated into their activities, instructors point out that there is more "buy in" than with other pen and pencil exercises that they have tried. Because students have created a community structure with which they are familiar, the ensuing roleplaying is more real, and thus produces a more productive learning situation.

An intangible—and exciting—by-product of the community-based education effort is the enthusiasm and commitment of educators to teaching when individual-

ization can occur, not only in terms of assessment, but in terms of curriculum approach and teaching methods. The built environment offers an easily accessed, real-life tool for accomplishing this.

The most important *accomplishment* of the community-based education movement is to demonstrate that there are new and exciting ways to teach using real-life situations and the community as a primary resource. For the art educator, community-based education, emphasizing the built environment, offers unlimited potential for partnership opportunities within and outside the classroom, for meaningful learning and for demonstrating the integration and power of the arts.

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Author Note

The Center for Understanding the Built Environment (CUBE) is a resource center for educators, design professionals, and other interested citizens. It empowers young people to take responsible action in their communities in order to "bring up" an informed citizenry who will appreciate, respect, and work for a quality built environment. A registered not-for-profit organization, CUBE maintains a Resource Center and Library. Correspondence concerning this chapter, resources available from CUBE, workshops, publications, and current information about built environment education should be addressed to CUBE, 5328 W. 67th Street, Prairie Village, KS, 66208, or call 913/262-0691. Online access: www.cubekc.org.

About the Author

Ginny Ward Graves, Honorary AIA, is Director and founding member of The Center for Understanding the Built Environment (CUBE) which maintains a Resource Center and Library located in Greater Kansas City. She is the author of *Walk Around the Block: Using Our Communities in the Present to Learn about the Past and Plan for the Future* and *Box City, An Interdisciplinary Experience in Community Planning.* Her innovative curricula and efforts in the field of built environment and heritage education have led to awards from both the American Institute of Architects and the National Trust for Historic Preservation. For many years, her creative art column, *Discover Stuff,* appeared in both the *Kansas City Times* and *The Detroit News.*

ART AND THE BUILT ENVIRONMENT: STRATEGIES FOR SUSTAINABLE CREATIVITY

Stuart MacDonald
Glasgow UK City of Architecture and Design 1999

This chapter examines the antecedents, influence, and legacy of Art and Built Environment education (ABE) within art and design in Scotland. The emphasis is on the role of ABE within policy-making or assessment-based development and the ability of ABE to promote contextualization in art education. This means examining how and why mainstream ABE has been successful in achieving change, securing a move from what has been identified as "school art". The chapter thus relates art and design education to wider cultural issues, and in that sense the concept of "sustainable creativity" is suggested as a vehicle for seeking the longer term promotion of art and design which is concerned with community, environment, and innovation. Crucial to this discussion is the interventionist roles of the artist/designer/architect which are exemplified through novel partnerships and residency schemes.

Introduction

This paper examines the antecedents, influence, and legacy of Art and Built Environment education (ABE) within art and design in Scotland. The emphasis is on the role of ABE within policy-making or assessment-based development and the ability of ABE to promote contextualization in art education (Baynes, 1990).[1] This means examining how and why mainstream ABE has been successful in achieving change, securing a move from what has been identified as "school art"[2] or the orthodoxy which prevails despite pressures for innovation. This paper relates art and design education to wider cultural issues. One of these is *Glasgow City of Architecture 1999*, a major UK millennium festival which identifies public education of art, design, and architecture as one of its main priorities.[3] The concept of "sustainable creativity" (Biancini, 1995) is suggested as a vehicle for seeking the longer term promotion of art and design which is concerned with community, environment and innovation.

Crucial to this discussion is the interventionist roles of the artist/designer/architect which are exemplified through novel partnerships and residency schemes conducted by the Glasgow School of Art.

Art and Environment: Scottish Antecedents

Scotland has a long history of providing built environment education. This goes back to the publication of the first *Drawing Memorandum* by the Scotch Education Department in 1908 which sought to distance itself from English models. This publication was at pains to push imaginative approaches as an antidote to "drawing on the flat," and it is interesting to note similar moves in early policy-making in the USA. Numerous archival examples show that there was an active study of the local environment for national examinations in Scotland, certainly up to the end of World War II. Also, during the first half of the century art appreciation, including architecture, was a component of High School courses, as it is today. From the early '40s pupils have worked directly from the local environment; making graphic observations, giving opinions, and making comparisons—prescient indicators of ABE methods. However, the influences on what eventually became known as ABE, reverberated in both England and Scotland. For example, Thompson (1973) produced material on environmental design education, precursing ABE by 10 years. Although aspects of that work were picked up by teachers, its influence was limited by the examination system which by that time had ossified into studies of sheeps' skulls or similar *objets trouves*. Significant shifts of emphasis had to wait to the mid 1980s and the program for 14-16 year-old students called Standard Grade which, like its English equivalent, the General Certificate of Secondary Education (GCSE), was set to replace the Ordinary Level Examination in Scotland.

The Eighties and the Search for Contextualist Models

New courses and assessment for Scottish 14-16 year-old students were instrumental in using many of the ideas of ABE. That philosophy, developed under the auspices of the well documented, Schools Council's *Art And The Built Environment Project* (Adams and Ward, 1982) insinuated a broader concept of art and design education implicating a concern for the social and cultural, and physical environment. ABE rendered a major service in democratizing the subject matter of art and design and contributed study methods in perception as a counter to dependency on seeing-stimulus response models. The ABE project evaluator remarked that a back street in Winchester might be a more "democratic" subject for critical appraisal than the *Blue Boy* or *Les Demoiselles D'Avignon*, in that the range and variety of supportable critical opinion is value-free of such accolades as "masterpiece" or "work of art."

In Scotland, the new Standard Grade Art and Design course proposed a range of learning contexts including the environment, and had adopted a range of learning activities in which Critical Studies was integrated with practical work. So, ABE's contemporary publication offered a number of timely strategies (MacDonald, 1985). From that point, annotated drawings, critical appraisal sheets and other ABE meth-

ods became widely used in Scotland. What is significant is that the practice was *sustainable* due to the mandate for evidence for Critical Studies in national examination. Although GCSE in England may have returned to academic orthodoxy (Davies, 1992), in contrast aspects of ABE persist in Scotland, due mostly to the formal requirement for Critical Studies in the national examination.

ABE: Links with Public Art and Community Art

Because of the pressures on schools, particularly the current universal demand for accountability, and the vulnerability of innovation as teachers "play safe," there is a need for more "sustainable" methodologies encapsulating a range of skills and knowledge in art and design. One such strategy has been led by Adams (1989) who has suggested that we need to "learn how to learn" in order to manage change, pointing to the need for a range of capabilities: to question, to be curious, to investigate, to identify, to clarify, to order. Case studies exist in Scotland which provide support for this. They demonstrate, moreover, the convergence between ABE and public art and design. An example is the *Garnethill Built Environment Project*, which in 1994 resulted from a partnership between the school district and the renowned Glasgow School of Art. With the city-center neighborhood of Garnethill as the locus, the purpose was to bring high school students and their art teachers together with the School to research and analyze the crucial roles that architecture, design and fine art play in giving form, identity and quality to public and private spaces. As a keynote speaker, Adams pointed to the democratizing characteristic of design education:

> The design focus created an opportunity not only to respond to what exists but to consider alternative or future possibilities. Design is about shaping and controlling the environment. It is about dealing with change. In developing proposals for change pupils had to give some thought to form and appearance. They also had to take account of the geography of the area, the history of the place....they had to be sensitive to the possible impact of their proposals on the surrounding streetscape. Perhaps such experiences as this might contribute to creating a more aware, sensitive and critical public in the future, able to respond to the demands of environmental change positively and creatively. (Adams, 1994, p.5)[4]

Collaborative ventures between the school district and partners like the Glasgow School of Art have been a hallmark of the development of art and design education in the 1990s in Scotland. Such initiatives point to a continuing policy of bridging the classroom and the built environment beyond.

An Example: The Glasgow School of Art Artist-in-Residence Scheme

At another level, students in the Environmental Art course at Glasgow School of Art (famous for novel approaches to public art work) were involved in the initiation of a residency scheme in 1990, influenced by art in nursery schools in Reggio Emilio in Italy. When this scheme commenced it involved a handful of nursery centers, places normally isolated from professional contact. The artist residency scheme now encompasses all school sectors and draws in over 200 student participants. Such a project can demonstrate how to break down barriers between education sectors and open up new areas of participation. What is significant is that not only has it has grown and spread to other art school faculties, as well as widening out into secondary and primary schools, but that it is now an accredited part of academic programs at the Glasgow School of Art. Furthermore, the residency scheme has grown into a planned program with inputs from visiting educators, setting the scene for aspirant artists-in-residence. The residency scheme has also led art students, who had no previous aspirations to become teachers, to use art and design educational themes for degree dissertations. In addition, annual monitoring reports on the residency scheme are available which analyze of the role and relationships of the artists, albeit student artists, with young people and teachers in the context of the present-day curriculum. What makes this material of major benefit is that student artists in schools can help span the gap between policy and practice, because they showcase the world of contemporary practice, so avoiding the orthodoxy of "school art." Importantly, one report has suggested that this is a learning environment in which peer tutoring, group learning, experimental learning, and self-evaluation are increasingly significant.

Another illuminative account comes by way of Boyle (1993) who provides an interesting case study . As part of the initial wave, she was one of the first to write a degree dissertation devoted to art education based solely on her residency. Second, because of that experience, she was successful in being appointed as a municipal artist-in-residence in Manchester. Third, she returned to tutor on the *Garnethill* project, thus revisiting the role of "artist-as-interventionist," but as a more mature practitioner. Her reflections on attempting to introduce children to the kind of contemporary art in which she was interested as an environmental artist are insightful of curriculum development. In referring to the Scottish National Guidelines she noted:

> In giving a slide talk to the children of a primary class before commencing any practical work with them, I was attempting to inform them of the contemporary art world. The problem for teachers in this area is that they very often [have] little knowledge of what is current in contemporary art movements as a result of being tied up with organization of the whole curriculum which leaves little time to devote to developments in contemporary art movements. (Boyle, 1993, p.15)

Boyle also picked up, not uncritically, on the experience of Reggio Emilia underlining the confluence of child-centerdness and the programmatic growth of skills and knowledge in environmentally-based work:

> My interpretation of the essence of the work of Reggio Emilia is that teachings are formulated with the belief that the child is at the center of its own personal labyrinth, the latter being the environment, and it is only through an understanding of how the self exists within the world...that the child can discover self worth, opinion, likes, dislikes and hates. I believe that a fruitful, stimulating and successful education in the visual arts encourages the child to see itself at the center of an environment which is at its finger tips and which beckons interaction with each individual resulting in personal experiences being communicated through the visual arts. (Boyle, 1993, p.16)

This extract highlights both pragmatic and philosophical concerns and is indicative of the forces prevailing upon present-day curriculum delivery. What is singular about Boyle's position is that it has caused her to remain in the *milieux* of artists' residencies and public art, with herself cast as a primary resource! In her reflections on the *Garnethill* project, Boyle has moved towards a more considered realization:

> The result was a presentation of both 2 and 3 dimensional proposals demonstrating a perceptive understanding of how a piece of public art can be a positive symbol that people identify with and respect; thus strengthening the existing sense of community. The project built on the school experience of art and design. It allowed pupils to realize that it is they who can positively influence and affect the future development of the built environment, using their experiences and ideas for positive change and enhancement of what already exists. (Boyle, 1993, p.17)

Artists, Designers, and Architects as Resources

Such a progressive case study is no mere anecdote. It illuminates the case for contextualization in the sense of cementing relationships between school, university, the environment, and the community at large. From its initial participation of only a few students, the scheme now attracts over 200 volunteers. And several hundred residencies are planned for 1999, the *City of Design and Architecture* festival. The continuing interest in the project by elementary and high school teachers on an increasing scale provides a valuable affirmation and strengthens the relationship between the community and the Glasgow School of Art. The most common reason for this success is the recognition of the artist /designer/architect as resources. Critical learning, developing new skills, role models, links to industry; have all been cited as criteria for success, which highlight the crucially important role for artists and designers in residence. Using those resources does require, however, an expanded menu of skills over and

above those traditionally seen as prerequisite in the production of art. For example, Chambers, an environmental artist who works in Glasgow, has delivered a valedictory warning about the dissonance between artists and schools and the historical reason for that state of affairs, raising the specter of "school art":

> ...all of that raises the question as to how the artist has become so separate from society that school after school, head teachers and teachers in primary schools, people with many skills, feel inhibitions in art—'I was never any good at art,' would be a common quote. What we have said to them is, you are not creative, but if we had been doing our jobs better we'd have given them confidence to be creative and to engage in the discourse. Now, that role of the artist, the link between the outside and the inside; you could say that was when the separation began - all those art teachers who go on about the old methods, about still-life—the fish on the plate, I can see it in my mind now, any fish, anywhere in the world—to miss the opportunities I am talking about now, that would almost be pathological.

The concept of artist-in-residence acting as a bridge between rhetoric and reality has been found to be a robust element in the process of contextualization. In this environmental work has been a catalytic force.

Art, Design, Community, and Sustainable Creativity

The interventionist role of the artist/designer/architect has been aided by the fact that community education is back on the agenda, signifying a renewed locus for ABE. In Britain the move is occasioned by a reaction to the materialism of the past decade and a return to values in education and the need to promote a range of capabilities or what Eisner (1994) has referred to in the Scottish context as "multiple literacies." There is a burgeoning movement in North America stimulated by a similar aspiration to empower individuals and the communities in which they find themselves, underlined by Gardner's (1993) "multiple intelligences," and the need to relate students to appropriate learning opportunities . American art educators like London (1994) have also been active in this area through Community Based Art Education. All of these examples challenge the prevailing orthodoxy. Not least there has been a renewed interest in *creativity* in the context of community, especially the role of artists in sustaining an imaginative dialogue with policy makers in the realm of urban renewal (Santacatterina, 1995). No terms (such as "Community Art" or "ABE"), are sufficient to describe this trend, as the movement subsumes a broad range of cultural practices, especially those related to environmental art and design. The question thus arises, what does characterize the various groupings which are moving in this direction, and to what extent do they represent the concept of "sustainable creativity"?

In Scotland the realm of public (environmental) art has been identified as offering interesting examples of art and design for public spaces arising out of a process of interaction between artists, planners, architects, and the users of the place, including

children. Educating for such projects where collaboration is a priority, requires certain skills: an understanding of place; communication skills including listening skills; skills of presentation and negotiation. Furthermore, it necessitates a more student-centered approach than previous models. In Scotland, due to the focus provided by large-scale policy initiatives like Glasgow's nomination as *European City of Culture 1990* in which education and culture was seen as integral to the pursuit of social and economic improvement, a climate has been created which is conducive for art and design education. Simultaneously, changes are taking place within art and design education. Harding (1993), head of environmental art at the Glasgow School of Art, has written of the need for a "truly public art for our time." It is no coincidence that Harding has been an active protagonist in contextualizing the discipline and has been instrumental in achieving a relation with public art and the environment in which educational considerations have been predominant.

From the early 1970s there has been a growing realization that the traditional production orientation of art education has been insufficient to develop critical, aesthetic and contextual understandings. The concern to install Critical Studies in Scotland and England and the growth of Discipline Based Art Education (DBAE) in the USA, testifies to that awareness. Despite the amalgam of creative and critical discourses, and the other benefits of the past 10 years, there is still some distance to go, according to those seeking a wider definition of art. An art and design curriculum that fully encompasses productive aspects, including design and, critical activities, is individual and student-centered, including concepts of gender, age, class, and ethnicity, is still some way off. In Eisner's thesis, the function of "multiple literacies," in other words, meaningful access to art, music, mathematics, and so on, is to create "equity" because in that sense, meaning becomes *diversified.* What is also interesting about that idea is that it identifies the need for young people to construct their own educational agendas. Thus, such a postmodernist art and design curriculum is made contextually relevant by looking to the world outside school , and is also rooted democratically in the culture and environment of young people themselves because they take part in educational decision making. How can this flexibility be reached without becoming totally nebulous? How can such contextualization be attained? And, what does community and environment mean in that broadened context?

Glasgow: The City as Case-study

The fundamentally democratic nature of curriculum design in Scotland ensures that each young person receives *Creative and Aesthetic Studies* within the national framework for secondary education, just as *Expressive Arts* exists in the new curriculum for 5-14 year-old students. That principle has ensured a continuing high profile for art education in large-scale festivals like *City of Culture* and *City of Architecture and Design 1999.* The education proposals which comprised the successful bid for the latter are contextualist in orientation and include:

- creation of a coherent plan in which design is seen as a progressive development through primary, secondary, and beyond, in which institutions and individual architects and designers, play a key role;

- provision of integrated themes for design and built environment education, focusing particularly on the environment and ethos of schools, and their development plans;
- innovation of staff development and training through strategies which maximize the potential of artists' and designers' residencies.

The high degree of kinship, therefore, of public art and design with art and built environment studies, linked to the wider promotion of culture, presents challenges for policymakers in art and design. These challenges return the debate to the innate conservatism observed in some areas of the art and design constituency. *City of Architecture and Design 1999*, however, contains some innovative case studies which may point the way forward. As part of the bidding process to the Arts Council of Great Britain, education was a strong element. Education proposals were presented to the judging panel including a number of schools, teachers, and pupils who had been working on projects where public art and design and architecture converged. Many schools now have environmental design improvements woven into their institutional plans. The educational rationale for *Glasgow 1999* arose from that base and prominently features the involvement of professional architects, designers, and artists. In these examples the participation of the community with the entire school, as well as the sharing of resources and expertise could provide interesting possibilities for study and evaluation as more fully developed case studies. What is also significant, and this circles back to the issue of a prevailing subject orthodoxy, is that these initiatives are fully integrated into the Scottish examination system.

Such examples have highlighted the necessary place of language in the process of contextualization that was identified earlier as important in ABE. This is supported by Parsons (1992) who sees contextualization through "interpretation" as a necessary precondition of the democratization of the subject. Equally, Harding (1993) has indicated the "failure to deal adequately with the social context of public art" and the consequent need to develop social and communication skills. Thus, if art and design in schools is to "come out" and fulfill the expectations of cultural programs such as *City of Architecture and Design 1999*, a policy on language in art and design instruction is a prerequisite. This may be the juncture at which to revisit an important historical area. Clive (1994), for instance, has recently pin-pointed Critical Studies as the descendant of Visual Literacy and sees it as an essential ingredient in appreciating "cultural contexts." Clive has identified the Attainment Targets of the English National Curriculum, and reinforced the notion that a range of languages are at work in art and design, and that language is context-bound, underlining ideas from both Eisner and Parsons. It is worth pointing out that in England, the National Society for Education in Art and Design in its response to the "Revision of Art and Design in the National Curriculum" upbraided the School Curriculum Assessment Authority (the main policy body) for omitting the "important concept" of visual literacy. Visual literacy is a potent idea. Art and design education requires promotion of visual literacy through Critical Studies. Art and built environment education, incorporating a range of methodologies targeted on real contexts like built environment, remain powerful ways of doing this.

Conclusion

External pressures on the role of art and design education in national curriculum frameworks have forced an accommodation with the present while trying to remain open to the imagined future. What makes sense, therefore, is to widen our definitions. In other words, in its postmodernist form, art and design education needs *cultural* attention to allay orthodoxy. Art and design education, whether defined as community-based, Art and the Built Environment, or in any other way, must offer experience according to a formula of creativity, sensitivity, and imagination. That will be what sustains the subject. As Dyson (1993) has remarked of the transferability of art and design, its potency is in its "permeation" rather than being a mere subject in the curriculum. That is the future program for City *of Architecture and Design* and it demonstrates the legacy of ABE as a "sustainable creativity."

Endnotes

[1]Baynes has described the main trajectory of art and design education as the "contextualist" orientation, that is, the objective of finding links with wider environmental or social contexts.

[2]Efland (1976), *Studies in Art Education* 17(2); Efland argues that there is an institutional "school art style" that has remained static, resisting external change.

[3]Major cultural festivals have been a characteristic of European Union; in 1990 Glasgow was European Cultural Capital followed by Dublin; UK Millennium festivals are a follow-on from this.

[4]Quoted in: Cosgrove J. ed. (1994), *Garnethill Built Environment Project*, Glasgow, Glasgow School of Art.

[5]Quoted in: MacDonald, S. (1997). Unpublished PhD. thesis., University of Liverpool.

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UNIVERSAL DESIGN IN ART EDUCATION: PRINCIPLES, PEDAGOGICAL IMPLICATIONS, AND RESOURCES

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The purpose of this chapter is to describe progress that is occurring in conceptualizing and designing built environments that promote equitable access for everyone including people with disabilities. This progress is largely attributable to an emerging design philosophy referred to as "universal design." Principles associated with universal design are introduced, resources to which art educators can refer are described, and pedagogical implications suggested. This chapter is introductory and meant to be a stimulus for additional consideration, exploration and investigation of universal design by art educators working with children, youth, and adults in a variety of school-based and community-based settings.

Ask your students to imagine a community in which residents of all ages have come together to create, implement, and maintain policies and incentives that promote a built environment that is accessible to all. This includes the homes in which they live, the places in which they do business, the sites in which they learn, the locations in which they work, and those many indoor and outdoor spaces in which they recreate. These spaces include parks, playgrounds, museums, community arts centers, and concert halls among many others.

Your students are imagining a socially ecological community. They are understanding the interdependence of environmental health and social well being (Bookchin, 1994). Healthy environments are those in which life can thrive. For people this means adopting painstaking design processes that are dedicated to achieving equity and accessibility in the built environment regardless of a person's culture, economic status, gender, age, ethnicity, and/or ability.

People associated with a variety of professions are imagining and initiating projects that support a socially ecological orientation to community. An increasing number of these projects are devoted to universal accessibility in the built environment. One constituency being addressed are those people with disabilities.

I have previously stressed the importance of designing community- and school-based art education programs and curricula that are accessible to the estimated 43 million children, youth, and adults with disabilities live in the United States (Blandy, 1991). The passage of the Americans with Disabilities Act (ADA) in 1990 resulted, in part, from a sociopolitical orientation to disability that stresses equitable access (Blandy, 1991). This orientation to disability promotes a view that associates disability with disabling design and design processes. As a consequence, discovering and implementing alternative design strategies is now a priority. It is also recognized that current and future generations of designers and community residents must be knowledgeable about what constitutes equitable access and the means through which equitable access is achievable.

The purpose of this chapter is to describe progress that is occurring in conceptualizing and designing built environments that promote equitable access for everyone, including people with disabilities. This progress is largely attributable to an emerging design philosophy referred to as "universal design." Principles associated with universal design are introduced, resources to which art educators can refer are described, and pedagogical implications suggested. This chapter is introductory and meant to be a stimulus for additional consideration, exploration, and investigation of universal design by art educators working with children, youth, and adults in a variety of school- and community-based settings.

Universal Design Principles

Architects and interior designers imagining and creating environments accessible to all people to the greatest extent possible are applying universal design. Their designs attempt to minimize the need for people to adapt. Their design process assumes that people's needs change over their life span. These design professionals are also challenging the idea of designing for "the mythical average person" (Mansfield cited in Universal Design Education Program, 1996).

Currently a group of universal design advocates are working collectively on a set of universal design principles (Universal Design Principles and Guidelines, n. d.). These advocates include architects, product designers, and environmental design researchers. The principles resulting from their collaboration are meant to be applicable across environments and purposes. Thus far, seven principles have been conceptualized to assist in the design process, evaluating design, and educating designers and consumers about "usable products and environments" (Connell, et al., 1995).[1] These advocates continue to seek input from all interested persons.

Built environments reflecting universal design principles permit people with disabilities to encounter facilities from which they are not physically excluded and/or stigmatized. Privacy, security, and safety are available to all (Connell, et al., 1995). Equitable use is assumed.

People with disabilities can expect facilities to be flexible. Design will accommodate "a wide range of individual preferences and abilities" (Connell, et al., 1995). Users can also expect that regardless of their "experience, knowledge, language skill, or current concentration level" they will be able to understand the use of the facility

(Connell, et al., 1995). Closely related is the high regard given users' sensory abilities and the multiple ways in which information about a facility can be perceived. Users can be confident that "hazards and adverse consequences are minimized" (Connell, et al., 1995). For those people with physical disabilities, facilities are designed in such a way that they do not fatigue their users. Finally, a universally designed environment ensures that "appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility" (Connell, et al., 1995).

While there are still many environments that are disabling, people with disabilities are applauding the progress that is being made in the built environment as a result of universal design. Federal and state laws are effectively requiring public access. Golden (1996) posits that these laws are being "enforced better than many of us would have dreamed fifteen years ago." As a result, the organizations and professions responsible for the built environment are producing and distributing numerous resources on universal design. Many of these resources are adaptable for art education purposes.

Pedagogical Implications

I have discussed elsewhere the importance of children, youth, and adults participating in disability studies through a socially reconstructivist approach to art education for multiculturalism (Blandy, 1994, 1996). This approach acknowledges and supports people with disabilities who promote disability culture and a disability aesthetic (Blandy, in press). This orientation is reinforced by Hicks's (1990) advocacy of art teaching that encourages students to "engage in the transformation of social relations of power" (p. 44). Universal design reinforces Hicks's sociopolitical approach to art education because of its focus on diversity, context, and community of difference.

Disability rights advocates and the ADA have convinced me that to responsibly teach and learn about the built environment requires an understanding and appreciation of universal design. Art educators can, and should, be instrumental in this process. It is likely that the playful and imaginative orientation of many art educators will allow the field to significantly add to the interpretation and practice of universal design. The following examples suggest some of the contexts in which this interpretation and practice can occur. Resources suggested within these examples will be discussed more fully in the next section.

Children, when beginning to think about the design of their school or classroom, can be encouraged by art educators to think about the ways in which this design enables or disables them. "The ADA National Access for Public Schools Project" can provide art educators with information adaptable to this purpose (Adaptive environments, 1996). Solutions for disabling design can be proposed and implemented by children, based on universal design principles.

Youth learning about the various professions that contribute to the built environment can investigate the ways that these professionals are successfully accommodating people with disabilities in the designs that they produce. *Designing a More Usuable World* (1998) can illustrate for youth cases in which universal design has been used by the corporate community. This resource will also link students with professionals and

professional organizations around the world exploring design issues from a universal design perspective.

Adults preparing to be art teachers should be given the opportunity to conceptualize the ways in which universal design impacts teaching/learning and the art education curriculum. Examples provided by Welch (1995) give an overview of how other design professionals find this to be possible. Her examples can be adapted to art education. For example, adults preparing to be community arts educators should be knowledgable about the ways that community arts facilities can be assessed and evaluated in relation to universal design principles. Strategies for solving problems in the built environment should be familiar to these individuals as well. Resources available through the NEA provide standards and practices in this regard (Barrier Free Environments, n. d.; *Design for accessibility: An arts administrator's guide*, 1994).

Universal Design Resources

Art educators preparing to introduce students to the principles associated with universal design in relation to people experiencing disabilities can access numerous resources that describe universal design; access and the built environment; and the accessibility of art oriented environments. The following annotated bibliography of eight resources can assist art educators working with children, youth, and adults in a variety of settings incorporate the principles associated with universal design into their built environment education curriculum. These resources are not exhaustive of all that is available but are suggestive of what is emerging in the literature.[2]

Universal Design

Adaptive environments. (1996). [On-line]. Available:
http://www.adaptenv.org/Indexg.htm
This site is rich in information about universal design as well as links to other sites associated with the concept. Of particular interest to art educators will be information on "The ADA National Access for Public Schools Project." This includes a self-evaluation guide that provides detailed instructions on how to determine a school facilities' accessibility and degree of compliance with the ADA. This site also contains information about the "Universal Design Education Project." This project emphasizes the importance of connecting future designers of the built environment with people with disabilities and older people as a part of the design education process.

Center for Universal Design. (1990). [On-line]. Available:
http://www2.ncsu.edu/ncsu/design/cud/
This site contains valuable information on what differentiates universal design from accessible design and adaptable design. Universal design principles are associated with designing for all people. Accessible and adabtable design strategies were developed primarily in relation to people with disabilities. Differences between orientations is largely philosophic with many strategies and practices associated with each being similiar.

Art educators working with youth and adults may wish to include design philosophy as a part of their curriculum.

Designing a more usuable world. (1998). [On-line]. Available:
http://trace.wisc.edu/world/
This site contains a full explication of the principles associated with universal design. Also included is a discussion of the rationale for adopting this form of design and how the procêss of universal design has been used by corporations. Of interest to art educators wanting to know more about constituencies with disabilities is an introduction to the topic. This site also contains a list and links to other universal design-oriented references and resources.

Vanderheiden, G. C., Chisholm, W. A., Ewers, N., & Dunphy, S. M. (June, 1997). *Unified web site accessibility guidelines.* [On-line]. Available:
http://trace.wisc.edu/docs/html_guidelines/version7.htm
Cyberspace has been described as a place in which city like configurations of web sites exist (Mitchell, 1996). The spatialization of information within sites has been referred to as the "architecture of cyberspace"(Caspersen, 1995). Vanderheiden, Chisholm, and Ewers suggest design strategies for HTML pages that make them accessible to as many users as possible. Access problems to HTML documents are described. Alternative HTML design strategies are suggested. These strategies are based on what is possible "today" as well as on anticipated technological developments.

Welch, P. (Ed.). (1995). *Strategies for teaching universal design.* Boston: Adaptive Environments & Berkeley: MIG Communications.
This important book details the efforts by 22 design programs across the United States to include universal design in the curriculum. The curriculum interventions described in this book illustrate the range of challenges faced by educators and students as they begin to consider the opportunities afforded by this design orientation. For art educators this book can be a valuable resource on the ways that universal design can be included in the curriculum. The learning strategies presented in this book can be adapted for art education purposes.

Access and the Built Environment

Americans with disabilities handbook. (1991). Washington, DC: Equal Employment Opportunity Commission & The United States Department of Justice.
This handbook is a comprehensive introduction to the ADA. Of particular interest to art educators will be those sections in the appendices that pertain to the built environment. Extensive and detailed information is included on what constitutes an accessible building. Readers interested in more specific information are urged to contact the Equal Employment Opportunity Commission and/or the United States Department of Justice for technical assistance manuals.

Accessibility and Arts Oriented Environments

Barrier Free Environments. (n. d.). *The arts and 504: A 504 handbook.* Washington, DC: National Endowment for the Arts.
Though published prior to the ADA, this handbook contains a great deal of useful information relating to the arts and people with disabilities. Particularly noteworthy is the section of the handbook that attends to the design of galleries and exhibitions. Recommendations are made in relation to general architectural accessibility, communication procedures, and the display of art works.

Design for accessibility: An arts administrator's guide. (1994). Washington, DC: National Assembly of State Arts Agencies & the National Endowment for the Arts.
The purpose of this guide is to assist arts administrators in designing programs and facilities that are accessible to older adults and people with disabilities. Legal requirements and examples of successful programs are given. The publishers of this guide designed it so it can be used in conjunction with *The Arts and 504: A 504 Handbook.* Particularly useful to art educators is that section of the guide that is an on-site evaluation tool of an arts organizations programmatic and architectural accessibility. This evaluation tool poses a series of useful questions relating to specific aspects of accessibility and pairs those questions with guidance on how appropriate changes can be made.

Conclusion

Art educators and learners of all ages can work together towards the understanding and implementation of universal design as applied to constituencies with disabilities. The resources described earlier in this chapter can be used in myriad ways dependent upon the many factors and issues that contribute to the context of teaching, learning, and curriculum development. It is also important that universal design be taught within the larger context of social ecological issues and the interdependence of environmental health and social well being. Finally, I want to emphasize that teachers and learners can be playful and imaginative in their encounters with universal design. Designing universally can be an act of rejuvenation as the built environment is critiqued and reimagined.

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Caspersen, T. (1995). *Architecture of cyberspace.* [On-line]. Available: http://kit.trd-kunst.no/~casper/diplom/thesisindex.html

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Design for accessibility: An arts administrator's guide. (1994). Washington, DC: National Assembly of State Arts Agencies & the National Endowment for the Arts.

Designing a more usuable world. (1998). [On-line]. Available: http://trace.wisc.edu/world/

Golden, M. (1996). Behind the scenes and from the trenches: In the real-world, nitty-gritty struggle for universal design. *The Disability Rag, 17*(4), 6-10.

Hicks, L. E. (1990). A feminist analysis of empowerment and community in art education. *Studies in Art Education, 32*(1), 36-46.

Mitchell, W. (1996). *City of bits* [On-line]. Available: http://www-mitpress.mit.edu/City_of_Bits/

Universal Design Education Program. (1996). [On-line]. Available: http://www.adaptenv.org/Adapttext/udep.htm

Welch, P. (Ed.). (1995). *Strategies for teaching universal design.* Boston: Adaptive Environments & Berkeley: MIG Communications.

Endnotes

[1]Readers are referred to Connell et al. (1995) for a detailed description of the seven principles of universal design with guidelines for implementation.

[2]All online references are correct as of September 1998. It is important to note that URLs do change.

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Doug Blandy is Associate Professor and Program Director of Arts and Administration at the University of Oregon. Within that program he coordinates the Community Arts area of concentration at the graduate and undergraduate levels. Dr. Blandy's current research continues earlier efforts to define, describe, critique, and analyze the implementation of community arts programs that are participatory, community focused, community based, socially ecological, and culturally democratic.

A FEMINIST PERSPECTIVE OF BUILT ENVIRONMENT EDUCATION: HISTORY, CRITIQUE, AND RESOURCE

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The purpose of this chapter is to focus on built environment education from a feminist perspective. First, the chapter provides a brief history of built environment education in Britain, the United States, and Canada. Second, it critiques built environment education from a feminist viewpoint. Finally, it describes a program which integrates women's issues. The principle argument of this chapter is that the built environment exists predominantly as the expression of an ensconced and inequitable social order. As such, the built environment has resulted, and continues to result in the oppression of women. By including the spatial and structural needs and experiences of women, within a community-based curriculum, and thereby acknowledging the special circumstances of female students, built environment education programs will cease to reproduce and entrench exclusionary practices. Fortunately, the presence of women in leadership positions may eventually facilitate the integration of issues relevant to women.

History

Britain. Built environment education is rooted in the environmental movement of 19th-century Britain, a response to the industrialization and urbanization of the English countryside. In the early 20th century, the notion that the environment could be a source of learning broadened field and nature studies into "social education." After 1945, "environmental studies" became part of a progressive teaching strategy in British teacher-training colleges (Martin & Wheeler, 1975).

In the 1960s, the growth of environmental education was spurred on by powerful ecological movements. Also at this time, unpopular post-war rebuilding created the need to address urban planning and quality of life issues. Thus, urban studies was formed as a specialized discipline. In 1970, the British Department of Environment was created, and the word "environment" was expanded to include the *built* as well as the natural environment.

Possibly, the greatest influence on the formation of built environment education was Britain's "education for environmental participation" (Martin & Wheeler, 1975). This program was developed under the auspices of the Town and Country Planning Association by two teachers, Colin Ward and Anthony Fyson, both of whom had architecture and planning backgrounds and possessed the radical populist ideals of the time. Their mandate was to promote education for community control of the environment. Under the rubric of "streetwork," Ward and Fyson (1973) advocated an issue-based, problem-oriented approach to the environment. Several British educators, in particular, Eileen Adams (1977, 1990), continue this approach.

United States. The term "environmental education" has had a long history in the United States; nearly all the life science curriculum meetings since the 1900s have promoted it. In 1970, when other countries were just starting to develop environmental education programs, the United States passed an Environmental Education Act, defining officially the term "environmental education" for the first time. Although the term stressed ecological concerns, it covered a broad spectrum including urban studies.

The Act was designed to provide Americans with the knowledge and insight to develop their resources in a non-destructive manner. All levels of education from preschool through adult and continuing education were included. Teachers and other educational personnel were encouraged to use it to expand the learning experiences of their students, to release themselves from the confines of the school building and to enter into and work with the local community. The Act postulated that children should learn about their community environment by "being in it, and from their direct experience in it" (United States Code, 1970, Volume 3, p. 4705). It strongly emphasized supporting teachers "in their quest to develop and refine their capabilities to comprehend the ecological cycle and to use the community, be it natural or man made, as a classroom" (United States Code, 1970, Volume 3, P. 4705). The Act provided support for many built environment education programs in the United States.

Canada. The first influence on what has become built environment education in Canada can be found in nature studies of the late 1800s and early 1900s. Teachers who took students outside the classroom for field studies in natural history helped to pioneer environmental education. These teachers believed that learning took place through personal contact with the natural environment and encouraged actual, rather than abstract, situations for learning (Sutherland, 1976).

A later development that may have had an influence on the formation of built environment education was the establishment of post-World War II schools of community and regional planning, in response to anticipated housing problems. A third influence may have been the emergence of environmental awareness and activism in the 1960s and '70s. This awareness spread into higher education and interdisciplinary degrees for the study of environmental problems were introduced. Initially, "environmental science" emphasized natural sciences, particularly ecology, but later, "environmental studies" had a greater emphasis on socioeconomic content. Eventually, aspects of these studies trickled into art classrooms to become built environment education.

The Voices of Critics

Starting in the late 1970s, a few critics began to voice their concerns regarding built environment education: British art educator Eileen Adams (1977, 1990), British critic, Brian Goodey (1978), American educator, Ronald Neperud (1991), and Canadian educator, Hinda Avery (1993, 1994a, 1994b). The views of the four critics are worth noting; all describe problems inherent in the study of the built environment. The writers identify, for example, the view of teachers that the subject is not an essential element in art and design (Adams, 1977, 1990), that the integration of built environment education does not involve the community in a coherent way (Goodey, 1978), that built environment education has tended to focus on aesthetic and design concerns while overlooking the sociopolitical reality (Neperud, 1991), and finally that the experiences of women in the built environment are not included in most programs (Avery, 1993, 1994a, 1994b).

A Feminist Viewpoint

The majority of built environment education programs in the U.S., Canada, and Britain, adhere to a format and approach which does not specifically integrate an awareness of issues affecting women (Avery, 1993). Because women's experiences are diverse by nature, this omission includes issues associated with gender, class, ethnicity, age, sexual orientation, and (dis)ability. Despite a growing body of work on women and the built environment published since the 1970s, these resources are not being used by the majority of teachers and curriculum developers, or architects and planners involved in education.

Most built environment education programs strive for visionary goals in their mission statements. An analysis shows that programs aim to assist students to: (a) develop an awareness and understanding of the urban environment, (b) cultivate discriminatory skills and gain confidence in critically appraising the built environment, and (c) obtain techniques to design a quality human environment. All of the stated goals are commendable, if they can also take into consideration women's experiences of the urban landscape and the experiences of others who are not traditionally represented in urban theory, planning, and design, such as the elderly and children. Genuinely inclusive programs need to look at historically marginalized communities. By *whose* standards, we must ask, do we critically appraise the built environment, and by *whose* definition do we design a quality human environment?

It can be argued that for program goals to be met, those involved in built environment education must acquire a grass-roots feminist perspective, one which recognizes women-centered initiatives. Because, in community-based women-centered initiatives we find vast areas where women are developing an awareness of the built environment, gaining confidence to critically appraise the built environment, and obtaining the skills required to design a quality environment.

Visibility of Women in Built Environment Education: Possibilities

Women have had considerable influence on built environment education and continue to be in the forefront of the movement. They have contributed to the field with programs, textbooks, and teaching aids. The dominant leadership comes from 13 women: British art educator, Eileen Adams; Canadian educators, Christine Bardou, Suzanne Bernier and Chantal Quintric Leveille; and 9 American women: Laura Chapman, Rolaine Copeland, Rogena Degge, Aase Eriksen, Ginney Graves, Joanne K. Guilfoil, June King McFee, Doreen Nelson, and Anne Taylor. The only art education textbooks that deal with the built environment in any significant manner come from 3 women: June King McFee and Rogena Degge (1980) and Laura Chapman (1978).

The active leadership demonstrated by women raises an important question: Will the presence of women in leadership positions eventually facilitate the integration of issues relevant to women? Certainly this leadership reflects socially responsible leanings. For example, Eileen Adams (1977, 1990) calls for changes in teaching methods and attitudes that allow for community involvement. Anne Taylor (1991), who organized a built environment education conference in the spring of 1993, believes in a cross-cultural approach and brings to it spiritual and metaphysical expressions. June King McFee (1980) also advocates cross-cultural awareness in design and the built form. She was stimulated to write her textbook after visiting the riot-torn areas in American cities during the 1960s and early '70s where she was strongly disturbed by the political decisions that destroyed ethnically developed neighborhoods. She is a supporter of equal opportunity and an ecologist. Laura Chapman (1978) argues that students have the right to know that the built environment is a product of multi-layered decision making and as citizens, they can be participants in the process of shaping the built environment. She witnessed the consequences of misplaced priorities in the construction boom after World War II and believes that ill-conceived design has social and cultural consequences well beyond the location in which it is found. Ginny Graves (1992) asserts that lack of design literacy is destroying cities; she contends that once people are made aware of issues they will demand more supportive environments. Joanne K. Guilfoil (1994), one of the few art educators acknowledging publicly issues of gender in the built environment, states that the politics of public space belong on the art education agenda as much as on the feminist agenda and that built environment education should play a role in forming attitudes that honor human difference. The strong leadership demonstrated by women shows that there is potential for integrating spatial and structural issues concerning women. However, female art educators will have to develop a feminist critical practice before their programs differ from those of men; nonetheless, many aspects of their programs reflect this leaning.

Resource

Environments for Girls and Women: A Built Environment Education Program For Intermediate Grades is a Canadian-based program that provides a framework in which to develop more inclusive programming. It seeks to stimulate the interest of educators

in women's issues relevant to the built environment, incorporating the traditional emphasis on aesthetics against a backdrop of social responsibility and economic realities. It is built environment education from a *feminist perspective* and is designed to empower female students by validating their experiences and their right to have an effect on the world in which they live.

The inclusion of women's issues may add missing questions to built environment education: Who builds what for whom? And why? And what can be built instead? The suggested lesson plans encourage students to discuss these questions, to get involved with women's issues and women's communities, and then to visualize, create, and help implement new socially responsible environments. For this to take place, the lesson plans recommend that teachers collaborate with women from the community and feminist architects and planners to raise students' awareness of women's needs and women-centered community initiatives.

The program is designed for intermediate grades and fits well in Art and Social Studies. It is divided into three sections: Section one introduces teachers to "What is Built Environment Education?" and discusses some of the concerns with the present approach; it presents a brief "History of Built Environment Education"; and it responds to the question "What are Women's Issues in the Built Environment?" Section two offers three units of "Lesson Suggestions/Activities": the first unit introduces students to "Women's Issues in the Built Environment", the second suggests that students "See the World Through Different Eyes", and the third lets students know "What Women's Groups Are Doing". Many possibilities are provided within each unit and teachers are encouraged to pick and choose those units which fit their needs. Section three presents a series of "Talks for Teachers", which can be used as mini-lectures or background material. The talks address several important questions: What is feminism? What is feminist architecture and planning? What are women's issues in the built environment? What about women in architecture and planning? And what are women's structures and women's visions? The last talk suggests that there is hope for the future through a feminist perspective and suggests ways of "taking action." The last part of the program provides a list of feminist organizations that focus on the built environment in Canada, Britain and the United States. For more information on this program see "Resources."

Conclusion

Built environment education in schools has, for the most part, not included socio-economic content in relation to women. No program in the United States, Canada, or Britain, *actively* strives to represent women (Avery, 1993). Built environment education stands to benefit at this early stage from incorporating a perspective that is informed by the input and participation of a truly representative community of people. Fortunately, the presence of women in leadership positions may eventually facilitate the integration of spatial and structural issues concerning women and other marginalized people.

Figure 1
What is Built Environment Education?

Figure 2
A Desirable Neighbourhood for Girls and Women

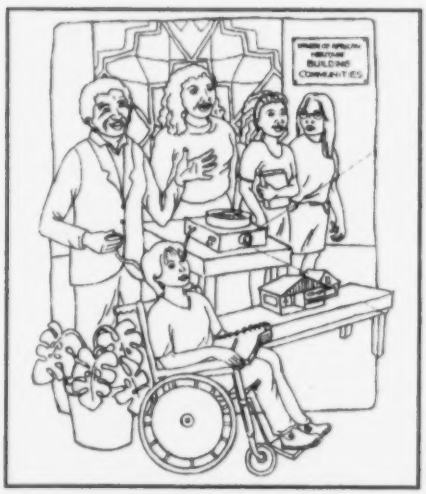

Figure 3
Women of African Heritage Create Communities and Carry on Cultural Traditions

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Teachers Federation Lesson Aids, 550 West 6th Avenue, Vancouver, British Columbia V5Z 4P2 Canada, (604) 871-2283 or 1-800-663-9163.

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